FWC Sector Competitiveness Studies N° B1/ENTR/06/054 – Sustainable Competitiveness of the Construction Sector

Final report

Client: Directorate-General Enterprise & Industry

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Executive Summary

Background

In the autumn of 2011, the European Commission will submit a communication for the sustainable competitiveness of the construction sector. This study was initiated in 2010 by European Commission DG Enterprise and Industry, unit G5 "Construction, Pressure Equipment and Metrology" with the purpose of analysing the needs of the sector as well as the foundation and feasibility of launching a renewed competitive agenda for the EU construction sector within the context of the Smart Growth Agenda 2020.

The point of departure is the 1997 Competitiveness Agenda, presented on 4 November 1997 in the Commission Communication COM (97) 539 "The Competitiveness of the Construction industry". The agenda presented an ambitious plan for improved competitiveness of the construction sector with an extensive list of priority actions. The implementation of the action plan primarily relied on voluntary contributions from sector organisations through 13 working groups established to examine the key challenges and provide recommendations for actions.

The *Europe 2020 strategy* sets the overarching framework for a future strategy for construction focusing on the following three priorities:

- **Smart growth**: developing an economy based on knowledge and innovation;
- **Sustainable growth**: promoting a more efficient, greener and more competitive economy;
- **Inclusive growth**: fostering a high-employment economy delivering social and territorial cohesion.

The construction sector is of strategic importance to the EU as it delivers the buildings and infrastructure needed by the rest of the economy and society. It represents more than 10% of EU GDP and more than 50% of fixed capital formation. It is the largest single economic activity and it is the biggest industrial employer in Europe. The sector employs directly almost 20 million people. According to FIEC[1], the sector indirectly and directly affects some 44 million workers. 40-45% of Europe's energy consumption stems from buildings with a further 5-10% being used in processing and transport of construction products and components.

In the medium to long term, infrastructure will have to adapt to future climate risks. Furthermore, the future competitiveness strategy for the construction sector will need to address the environmental and social challenges in the EU and globally.

[1] European Construction Industry Federation

Objectives

The study is intended to provide the European Commission with a foundation to enable the Commission Services to elaborate a comprehensive strategy for the sustainable competitiveness of the EU construction sector. Specifically, the study:

- Assesses the competitive position of the EU construction sector;
- Elaborates learning points derived from the implementation of the1997 competitiveness agenda;
- Identifies and analyses key factors influencing the current and future competitiveness of the EU construction sector;
- Examines and assesses the regulatory and other framework conditions at European and national level to identify key challenges that the mid-term strategy needs to address;
- Presents a draft strategy, actions and implementation plan.

Definitions

Sustainable competitiveness reflects the ability to achieve and maintain the (economic) competitiveness of industry in accordance with sustainable development objectives. In the context of this study *sustainability* is concerned both with the contribution made by the construction sector to economic growth, social cohesion and employment and with those capabilities within the sector (or the enterprises therein) that enable it to compete in markets that are open to international competition. It also implies that the sector's economic performance needs to be set against its performance in terms of conducting processes and using resources in an efficient and sustainable way while minimising negative environmental impacts (i.e. enhancing environmental welfare).

The construction sector is defined using the NACE 1.1 sector classification and includes the following subsectors:

- Manufacturing of construction materials: Suppliers of building products and components (incl. wholesale);
- Onsite construction: Site preparation, Construction of complete buildings, building installation, completion and rental of construction machinery;
- Professional construction services (incl. architects, engineering services, cost controllers and building control bodies);
- In addition, the study examines the importance and relevance of Real estate services as a key client base of the sector.

Approach and methodology

The study deploys a range of methodologies. The core of the approach is the competitiveness analytical framework. The analytical framework includes four overarching assessments of the sustainable competitiveness of the sector:

- Assessment of inputs, structure and processes in the sector;
- Assessment of external factors such as market demand and supply and other exogenous factors;
- Assessment of competitive benchmarks in relation to business models and strategies; and

- Assessment of regulatory and other framework conditions.

A literature and Member States review was undertaken and a matrix of possible sector challenges was used to organise literature and Member States responses in terms of most pertinent challenges and key developments at Member State level.

Data collection has been conducted at national, European and international level. Different data sources have been used, including Eurostat, OECD, Euroconstruct, Amadeus, national statistical offices, various surveys, impact assessments and studies.

Semi-structured interview guidelines were used for interviews with national and international stakeholders to uncover important factors related to competitiveness of the construction sector. The guidelines were used for interviews with:

- Member States' sector and government representatives;
- Company, sector and subsector representatives concerning developments in competitiveness of construction sector and subsectors;
- Representatives of important regulatory initiatives;
- Representatives of initiatives aimed at improving the competitiveness of the construction sector; and
- Persons involved in the 97 Competitiveness Agenda implementation.

The draft strategy and implementation plan was developed using the following methodologies:

- Challenge/objectives tree for the sector (a tool helping to break down and graphically analyse challenges and objectives);
- Policy development framework covering impact, timing, relevance, risks, resources and indicators;
- Policy development workshop discussing the above inputs; and
- Assessment of strategy in relation to future scenarios and up against ideal scenario.

Structure of the report

Chapter 1 presents a reading guideline, i.e. the background, objectives, approach and methodology and key tasks.

Chapter 2 defines the construction sector and its subsectors. The chapter describes the sector through key structural data and performance indicators of the sector and its subsectors including market segments, employment, production, value added, and productivity.

Chapter 3 contains an assessment of the competitive position of the EU construction sector. Several indicators for competitiveness are considered including business conditions, various input indicators, which can be assumed to affect the competitive performance of the construction sector, as well as process, output, performance indicators and demand factors and market prospects for construction products.

Chapter 4 focuses on the regulatory conditions affecting the sector, i.e. environmental regulations, industry specific standards, competition policy and labour market and health & safety regulations, other important framework conditions and exogenous conditions.

Chapter 5 examines the implementation of the 97 *Competitiveness Agenda* to extract the key learning points in relation to the implementation of the future sustainable competitiveness strategy.

Chapter 6 contains a strategic outlook for the EU construction sector. It presents the key challenges and a vision for the sector, key objectives and recommended policy measures based on the existing EU and national policy landscape. A governance and implementation plan is proposed to achieve the vision and objectives.

Structure and performance of the construction sector

Importance of the sector

The construction sector is important for the European and global economy. The overall sector accounted for 15% of all persons employed in European business (NACE sections C to K minus J) in 2007 while generating 10% of turnover and 15% of value added.

Onsite construction consumed € 750bn of intermediate products from other sectors than construction (NACE section F) in 2007, corresponding to roughly 44% of the subsector's turnover. In addition, Real estate services consumed almost € 220bn of intermediate products and services from other sectors not including Onsite construction.

Performance of the sector 2000-2007

The development from 2000 to 2007 in Onsite construction relative to 2000 in constant prices show a steady increase in number of enterprises (4% annually) and number of persons employed (3% annually).

Manufacturing of construction materials saw increases in the number of enterprises and number of persons employed from 2000 to 2007 that were somewhat slower than for Onsite construction (about 1% annually). Professional construction services showed the most marked increases in the number of enterprises (5% annually) and number of persons employed (4% annually) across the three subsectors.

For the majority of the period from 2000 to 2007, both turnover and value-added in Onsite construction grew slower or at least no faster in constant prices than the number of persons employed (1-2% annually). Increasing personnel costs compared to changes in value added since 2005 (4% annually), and the concomitant steadying of average personnel costs, significantly reduced growth in wage adjusted labour productivity in 2006 and 2007.

Turnover and value-added for manufacturing of construction materials generally grew faster or at least as fast in constant prices as the number of persons employed (2-3% annually). Professional construction services turnover and value added in constant prices increased faster than in either of the other two subsectors albeit roughly at the same pace as the number of persons employed (3-4% annually).

Output in all three subsectors grew comparatively faster in the EU12 between 2000 and 2007 albeit from low nominal levels (5-11 percentage point swing in annual growth rates).

Performance of the sector since 2007

The onset of the financial crisis in 2007 had a significant impact on activities in Onsite construction. The crisis started sharp drops in production volume and new orders during 2007 followed by corresponding drops in the number of persons employed, gross wages, and salaries during 2008. Since then, the EU27 has experienced a string of consecutive quarters with negative changes only appearing to slowly turn in 2010/2011 based on available data from Eurostat (and not for all countries). The countries with the highest decreases in construction activities since 2007 are especially those that had experienced the highest growth rates up to 2007. Another reason for the different impacts of the crisis on development in national production levels could be the nature and impact of already planned construction work as well as varying effects of national stimulus packages.

The crisis has primarily affected the market for buildings (average quarterly change of 2% from Q1 2008 to Q1 2010), while activity in the market for civil engineering has remained fairly constant after 2007 in terms of production volume (average quarterly change of 0% over the same period). A slight revival in total construction output is projected after 2010, but the 2006 level will not yet be reached until 2013 according to Euroconstruct data.

Similarly, manufacturing of construction materials has seen dramatic drops in production volume and turnover from early 2007 onwards as well as in the number of persons employed and gross wages and salaries after early 2008. Moreover, professional construction services were affected by the financial crisis. A sustained period of positive growth in turnover levels was followed by negative changes from early 2008 onwards. This drop coincides with the most significant decreases in activity in both Onsite construction and Manufacturing of construction materials.

Trading of construction materials

In 2007, the distribution channels of manufactured construction products consisted of approximately 190,000 wholesale enterprises in the EU27 employing almost 1.5 million persons and generating a € 462bn turnover. This subsector was also severely affected by the financial crisis and lack of demand in construction. Developments in each of the three broader wholesale categories all indicate significant drops in turnover starting in early 2008.

Real estate services

Real estate services show even greater increases in the number of enterprises (10% annually) and number of persons employed (6% annually) than in Professional construction services. The financial crisis has impacted Real estate services at least as negatively as the overall construction sector given the reliance of most activities in Real estate services on the prospect of increasing prices in the various housing markets for residential and non-residential buildings.

Mergers, acquisitions and market concentration

Consistent with the important role of SMEs (99.9% of all enterprises), and in particular micro enterprises (92%), in Onsite construction employment and output, market concentration in the subsector is relatively low. On average, the four largest enterprises accounted for no more than one third of total turnover in 2008. In Manufacturing of construction materials, on the other hand, the four largest companies on average accounted for more than half of total turnover in 2008, implying considerable individual power to control the selling price of construction materials. The financial crisis has had a significant impact on the number of M&A deals in the sector. After year on year increases, peaks were reached for Manufacturing of construction materials in 2005-2006 and Onsite construction in 2007 after which the number of deals decreased.

Skills and Education

Most of the employees in Onsite construction have at least an upper secondary education. There is a significant difference between the EU15 (61% of total employment) and EU12 (84% of total employment) averages, which in part reflects differences in the makeup of mandatory educational systems. More than 60% of employees in Onsite construction in the Southern European countries only have a primary or lower secondary educational background. Over time, the shares of employees in Onsite construction with an upper and post-secondary non-tertiary education or a tertiary education have increased although at a low annual rate in the EU27 from 2004-2008.

ICT usage

The share of enterprises in Onsite construction in the EU27 with (fixed) broadband access to the internet increased rapidly from below 40% in 2004 to nearly 80% of all enterprises with at least ten persons employed in 2009. The introduction of software for electronic management of orders and purchases and/or exchange information directly with suppliers and customers has increased more slowly. Only about a third of all Onsite construction enterprises with at least ten persons employed utilised ICT in 2009 to integrate internal business processes and barely one in ten utilised ICT to integrate external business processes.

Investments

The value of investments amounted to 12% of value added in Onsite construction in the EU27 in 2007. The overall investment levels in Onsite construction, and especially in residential and non-residential buildings, have fallen since 2007.

Research and Development

Business expenditures on research and development (BERD) amounted to less than 0.5% of turnover in Onsite construction and Manufacturing of construction materials in 2007. The share was lowest in Onsite construction and reached 0.05% of turnover in 2007, which appears to be a significant increase over 2001 levels. Shares were somewhat higher in the various sections of Manufacturing of construction materials but with decreases from 2001-2007. BERD approached almost 2% of turnover in Professional construction services in 2007.

In the most recent Community Innovation Survey from 2008 the share of enterprises which introduced a technological innovation during the previous two years was 20% of enterprises in Onsite construction, 30-40% of enterprises in Manufacturing of construction materials and 42% of enterprises in Professional construction services. EU27 enterprises were responsible for more than half of all PCT/international patent applications for new processes and products registered at the European Patent Office in 2006.

Environmental performance of the sector

Onsite construction and manufacturing of construction materials are characterised by the generation of large amounts of non-recyclable waste. Efforts started within the last decade towards development of materials that are easier to salvage and reuse will not show their full pay-off in the waste statistics until 20 or 30 years from now.

In the manufacturing subsector, there have been signs of a move towards a greener profile in recent years, especially in Manufacture of other non-metallic mineral products. In terms of waste efficiency (amount of wastes generated per unit of production) enterprises in Manufacturing of construction materials in the EU12 appear to generate significantly more waste relative to output than enterprises in the EU15. This is possibly due to differences in technology use induced by higher labour costs in the EU15.

The competitive position of the construction sector

The future competitiveness of the construction sector is critical not just for the different subsectors, but for the European economy as a whole. First, improving the performance of the construction sector will likely improve the performance of most other economic sectors as well as increase the quality of life for Europeans. Second, it would likely also contribute to reducing the challenges relating to the environment and climate. Improvements of performance could for example focus on:

- The total life cost of constructed objects;
- Meeting the future needs of clients and end-users (in a flexible way); and
- Creating constructions that are more healthy, safe and sustainable (both to inhabit and to construct).

Onsite construction

The current economic crisis has affected the construction sector significantly. Especially the sharp decline in the residential market has affected the majority of construction companies. Many of the companies that specialise in new private residential house building either have been declared bankrupt, have downsized dramatically or have shifted their attention to public housing and/or maintenance work. However, construction companies involved in other markets have also been affected. Public investments and governments' anti-crisis measures, although not all economically sustainable in the medium term, have kept the sector afloat.

A number of factors are likely to influence the future competitiveness of the sector (in a 10-year perspective) and to improve quality and productivity:

- Access to a qualified labour force;
- Access to finance and new financial models;

- Closer customer and end user relations and process innovation;
- Professionalisation of the clients;
- Access to applied R&D and tech trans such as new technologies, materials, smart and eco-efficient solutions and buildings;
- New service models to complement actual construction, retrofitting and renovation activities;
- Modularisation and pre-assembling;
- Coordination across actors to achieve lean construction; and
- Orientation towards future growth markets outside the EU.

Achieving progress in relation to the above factors will undoubtedly require the involvement of not just the construction companies, but also other actors in the construction value chain from suppliers of materials to clients, financial operators, insurers, and end users.

Manufacturing of construction materials

Until the financial crisis, the Manufacturing of construction materials subsector in Europe performed well with regard to turnover, value added, and employment. However, its current growth prospects are less positive for the years to come. Public and private investments in construction projects are needed to help the sector overcoming the crisis. The European Manufacturing of construction materials subsector is also facing considerable competitiveness challenges with regard to the rising costs of energy and raw materials.

On one hand, the absence of a level playing field at global level may result in a re-location of activities to countries outside Europe with a less strict regulatory environment. On the other hand, the regulatory environment may drive competitiveness and innovation in the sector if non-EU manufacturers throughout the value chain are required to comply with EU regulations on markets inside the EU; also when functioning as sub-suppliers.

Finally, standardisation is a key issue for the Manufacturing of construction materials subsector, and the different national standards and approval systems constitute a barrier to the realisation of the internal market for construction materials. The development and implementation of European regulation and standards (e.g. the CPD to be replaced by the CPR, the Eurocodes design standards, the ECOdesign directive, etc.) are vital for the future development and competitiveness of the sector. Equally, certification of products, professional construction services and key processes could become a driver for growth and increased internationalisation of the sector.

Professional construction services

The professional construction services subsector is currently not in a position to take full advantage of the future changes in markets and client demands. It is highly fragmented along national borders and each country has its own distinct customs, regulations and culture. This presents a barrier for the companies against taking up international activities. The problem is aggravated because there are still many barriers to international trade in services.

According to a survey by ACE (2010), the economic outlook for European architects is very pessimistic. 65% of respondents in a representative sample indicate that the current

situation is bad or very bad for architectural practices in Europe. This level of pessimism has been the same since the first survey covering the implications of the financial crisis in April 2009. Furthermore, 36% of respondents reported that they had experienced a reduction in their labour force in April 2010 compared to September 2008. Nevertheless, expectations for an increase in activity for the three months starting in April 2010 were greater than at any time since the first survey conducted by ACE in April 2009.

Despite many mergers and acquisitions in recent years, the current medium outlook of the sector is still clearly dominated by micro companies. The long-term outlook for architects will depend on how the subsector adapts to:

- Increasing focus on design for function instead of just design for form;
- The development and use of new building products and sustainability requirements.

Like in most other economic sectors, mergers and acquisitions play an increasing role for construction services companies to develop their competitiveness further; but mainly for the few large operators in the subsector. It is not a common practice for small companies.

Costs arising from failures in the construction process are relatively high and represent a significant risk for the professional construction services. Clients have shown increased interest in total solutions and privately financed initiatives. At the same time, both clients and contractors raise the issue that such contracts may also result in increased project risks for clients and suppliers. Hence, risk management is an important focal point for the subsector. Companies increasingly develop and use building information modelling systems to support project management and integration of the entire construction process.

Inertia in existing practices presents a challenge in professional construction services. Wider deployment of ICT could enable process innovation. There are trends towards increased diversification into new services and specialisation in high-value added services or special construction types (e.g. windmills, passive houses, etc.).

Large, bundled and complex contracts tend to favour large companies and increase the need for good project management. Hence, project management on behalf of the client is a significant service area for the professional construction services. Large, bundled and complex contracts make it difficult for SMEs in the professional construction services to compete. There is a need for more focus on participation in partnerships and consortia in order to be part of this market. At the same time, lean and non-discriminatory procurement procedures and contract conditions may help to ensure access of SMEs to construction markets.

Although the future growth markets are in the EU12 markets and markets outside Europe, the professional construction services subsector is still primarily geared to operate in national and other traditional European markets. However, there are examples of international growth through primarily NGO projects or expanding with national and European clients into other international markets.

Building control bodies are also undergoing change in Europe. Although the traditional system of full public responsibility is still the most frequently used in Europe, there are an increasing number of examples of partly public and partly private solutions as well as

fully private solutions. The main advantage of moving towards private solutions is the achievement of better and more efficient building control systems. The main disadvantage is the potential resulting lack of liability.

Regulatory and framework conditions affecting the competitiveness of the sector

The regulatory and other framework conditions affecting the competitiveness of the construction sector have been divided into regulatory conditions covering relevant directives, other framework conditions like skills, access to finance etc., as well as exogenous conditions such as sustainability and technological developments.

Regulatory conditions

The European construction sector is subject to various national and European regulatory requirements and standards concerning energy consumption, environmental risks and impact, health and safety, quality of products, etc. These requirements and standards are costly for companies in the sector in terms of administration.

Overall, representatives of the sector identify three key major policy challenges with regard to the impact of the regulatory conditions on the competitiveness of European constructions companies and the future development of the sector:

- The administrative burden relating to the administration and documentation of adherence to regulatory requirements and standards;
- The different levels of national implementation of European regulations and standards as a barrier to the realisation of the internal market.

Addressing these policy challenges in the future strategic agenda for the sector will be important for the future development and competitiveness of the sector.

Other framework conditions

There are several framework conditions that could function as enablers and/or barriers regarding the future development and competitiveness of the sector. Sector representatives have identified the following key challenges:

- Increasing the level of investments in the sector;
- Rising costs of energy, raw materials and wages constitute a major competitiveness issue for the sector, and efforts to reduce these costs are a key concern;
- Access to skills will likely become more difficult in the future due to a reduction in the European workforce in the years to come. The current high level of unemployment in the sector due to the financial crisis could worsen the situation in several ways, including an ensuing deterioration of the skills in the existing European skills base following long-term unemployment and the limited attractiveness of the sector to young talent due to uncertain employment perspectives;
- Access to cutting-edge technology and knowledge of companies in the sector in Europe will likely require further public and private investments in R&D. In particular, small and medium sized enterprises find it difficult to gain access to technology and knowledge in a form that could improve their capacity and performance;

- Access to finance has been severely restricted due to the financial crisis. This poses a threat to the survival and future development of the companies in the sector. Not least due to its impact on real estate services clients who are currently shying away from development activities, at least partially due to lack of funding.

Exogenous conditions

Technological developments, increasing competitive pressure and the sustainability agenda will form the future for the construction sector in Europe. The sustainability agenda is already being addressed in all parts of the European construction sector. Moreover, European construction companies are exploring the potential of industrialisation through the use of new technologies, but the take-up of mature technologies - not least ICT - could be strengthened further.

Learning points from the 97 construction competitiveness agenda

Overall, all four strategic objectives in the 1997 Competitiveness Agenda are still pertinent and at the centre of national policies for improving the construction sector. Thus, most Member States are currently operating or planning initiatives to address quality, the regulatory environment, the skills and the knowledge base in construction. It is arguable whether the objectives of the 1997 Competitiveness Agenda will remain relevant forever given the moving target nature of the issues and rapidly changing world markets and conditions for construction.

At the European level, there is general agreement among stakeholders about the relative success of the 1997 Competitiveness Agenda as a catalyst for improved quality, efficiency and sustainability in construction across Europe, and there is a perception that any potential problems have mainly arisen in implementation at lower levels.

The 1997 Competitiveness Agenda presented an ambitious plan with limited funds, however, and primarily based on voluntary contributions from industry and Member States. This is likely to have had a negative impact on the amount of facilitation, follow-up and coordination and hence the extent of the work achieved in the working groups.

In relation to the future competitiveness agenda key learning points are:

- Fewer, more visionary and measurable common goals that are measurable and can be communicated to sustain progress and commitment to strategic agendas – solutions tailored to individual countries or clusters of countries;
- Creation of a stronger link between the competitiveness agenda and RTDI agendas through a set of indicators to measure progress;
- Implementation to focus more on the nature of information networks and the importance of existing knowledge brokers to actively support implementation; and
- Strong multi-stakeholder commitment and coordination at national level across the different national initiatives.

Strategic outlook for the sector

Key challenges

Internal factors (value and supply chain)

Poor innovation performance in the sector: There is a need to boost R&D participation, technology transfer as well as non-R&D based innovation through market and employee driven innovation, regrouping of firms in networks and clusters to address issues of scale.

Poor productivity levels: Market and employee driven innovation is poorly deployed due to primary focus on cheapest price instead of the economically most advantageous proposal, but also because of poor deployment of enabling technologies, insufficient use of flexible work organisation practices. The sector is missing opportunities to add significant value to the economy, addressing the grand challenges as well as being more profitable.

Narrow skill sets in large parts of the sector may hinder it in becoming more competitive and in meeting new demands for high performance construction products and services in the market. One issue is that generic skills associated with 21st century jobs and occupations so far are only addressed and integrated in VET and CVET provisions in varying degrees. Generic skills such as problem orientation, problem solving, communication, design and entrepreneurial skills - are critical for cross-occupational collaboration in work teams and for exploiting value added creation at the firm level.

External factors (market conditions and demand)

General macroeconomic environment: During the financial crisis the sector has been impacted by severe drops in demand especially in the private residential market, but also in other markets. The infrastructure market has so far been the least affected due to already scheduled investments. However, public spending is also under pressure due to the crisis (targets are to reduce deficits by 50% by 2013 and the public revenues and costs should be balanced by 2016). Some countries have invested in stimuli packages as part of a post crisis strategy. It could, however, be argued that stimuli packages that do not contribute to increased productivity and innovation capacity and a greening of the economy will have limited effect.

Demographic change: The ageing of societies will influence the future tax revenue of states, availability of workforce and will create new market opportunities for the sector.

Labour market conditions: When the economy improves, the intra EU competition for skilled labour will likely return, and skills shortage and gaps could again become an issue for the sector in some countries.

Major drivers of structural change: There are global challenges that can become enablers of sustainable growth in the medium term provided appropriate measures are taken now as this could result in the development of a range of technological services to address such issues as health and safety, energy efficiency, green building, good indoor climate, and renovation processes and materials, design to fit. If rightly addressed, these

challenges could also open new market opportunities in developing countries for the sector.

Demands for convenience: Increasingly clients and users are demanding better performance of constructions. Users expect convenient solutions in the short, medium and long term from the construction sector. Key demands include low maintenance, automation, flexibility, health improving features, optimal environmental integration, etc.

Relative competitive position

Weak growth prospects in EU markets: As European construction markets are expected to grow at a slower rate than the emerging markets in, for instance, the BRIC countries, the sector will need to develop and maintain a stronger global perspective.

Fragmented industry structures: The markets of the EU construction sector and the sector itself are highly fragmented with only very few large construction companies. The participation of enterprises in trade organisations is very low in most Member States, making it difficult to spread good practices. Moreover, poor value chain integration has a negative impact on the potentials of spill over innovation effects from collaboration. This is reflected in large differences between Member States in the competitive performance of the sector.

Growing international (global) competition: The sector faces increased competition from outside the EU. The sector organisations have raised issues of unfair competition from state-owned enterprises benefitting from unlawful state aid in EU construction markets and also fear unfair competition from third-country enterprises not respecting European employment, environment and competition laws. There is increasing evidence that in particular countries under budget pressures drive public infrastructure procurement in the direction of abnormally low offers from non-EU contractors. For example, the Chinese have positioned themselves in developing countries that have experienced a positive growth in recent years and thus invest heavily in infrastructure development. Similarly, competition is increasing in non-EU markets from international contractors due to state-aid, highly competitive labour costs and high skills and technological level.

Regulatory and other framework conditions

Regulatory environment: Following on from the above, the sector is faced with an increasingly stricter regulatory environment. The challenges concern not only the definition of the regulations but also the effective implementation of these at national level. In addition, standards and certifications lack harmonisation across Member States. The lack of adherence of competitors to the regulatory environment provides threats as it may unbalance the EU and global playing field for investors, developers and suppliers of construction products and services.

Access to finance: The financial crisis, delayed payments by clients, ineffective financial management and limited profitability of parts of the construction sector have put strains on the access to finance for the sector. Equally, the significant decreases in the value of buildings in Europe and elsewhere have an enormous influence on the access to finance and investors for new construction projects. In particular, more speculative construction projects find it difficult to attract capital.

Vision for the future European construction sector

Given the challenges faced by the sector, the EU 2020 strategy and priorities, the following vision could be relevant to consider for a future communication on sustainable competitiveness of the construction sector:

By 2020 a sustainable and competitive European construction sector will

- Conceptualise, design, build, operate and transform constructions based on life cycle performance (cost/benefit) and high quality models;
- Be an attractive sector to work within providing excellent opportunities for job quality, health and safety, remuneration and career development;
- Offer constructions (buildings & infrastructure) tailored to the changing social and economic needs of people, businesses and societies (incl. relevant special needs segments of populations);
- Offer new and innovative solutions that meet the demands associated with the global grand challenges (climate, security, etc.):
  - be instrumental in the EU reaching its 2050 targets for energy efficiency in buildings;
  - reach or go beyond the 70% target for waste recycling;
  - meet requirements for quality of inner climate in buildings;
- Be an attractive partner to clients in existing and emerging growth markets;
- Deliver outstanding economic performance.

Objectives

To deliver this vision five overarching objectives have been developed:

- Objective 1: Strengthening the single market for construction through more effective regulation;
- Objective 2: Improving the skills base and work organisations practices through professionalisation and partnerships between private and public sector;
- Objective 3: Improving innovation capacity and performance in all its forms in the sector with a view to increase productivity, sustainability and value added in all parts of the value chain;
- Objective 4: Higher sustainability in design, products, processes and operations;
- Objective 5: Strengthening the global competitive position of the sector.

Recommended policy measures

Objective 1 Strengthening the single market for construction through more effective regulation	§ Monitoring and supporting the implementation of the Construction Product Regulation, the minimum standards for Health & Safety, Professional Qualifications and other regulations (EU, MS) § Clarification of parts of the Service Directive to allow construction services companies to access EU markets (EU & MS) § Support the effective implementation of the amended Late Payment Directive (EU, MS) to ensure that all companies along the construction value chain are paid within reasonable time.
Objective 2 Improving the skills	§ Establishing strategic partnerships between industry and education and training providers to ensure that national VET and CVET systems provide

base and work organisations practices through professionalisation, partnerships between private and public sector	training for the construction sector which is sufficiently flexible in terms of content and modes of delivery to meet the diversity of demand in the sector, and secondly that education and training providers together with the sector has the capacity to identify emerging changes likely to impact medium term skills demands. A key focus should be to support development of the management capacity (especially for SMEs) in key areas such as human resources, finance and quality, and health and safety management (MS, CVET & Sector) § Supporting skills development through the dissemination and exchange of best practice to national stakeholders (EU) and through negotiations of collective agreements and the rights to CVET at the local/and or national sector level. § Improve strategic capacity to deploy ICT, e.g. building information management systems, e-invoicing systems and ERP/accounting systems, in business processes, develop business models and products through government and sector initiatives and industry partnership with CVET institutions (Sector, MS, Intermediary bodies, CVET institutions). § Improve the capacity and systems of public and private clients procurement departments to select the economically most advantageous proposals and taking into account relevant sustainability conditions in construction contracts by providing easy to use guidelines for small businesses – including easy to access on-line advice and developing standard proposal assessment tools and creating standards for roles of clients, advisors and contractors (EU, Sector, MS, banks, CVET institutions) § Member States and sector organisations should consider launching and supporting campaigns to make the construction sector more attractive to talent (MS and sector).
Objective 3 Improve innovation capacity and performance in all its forms in the sector with a view to increase productivity, sustainability and value added in all parts of the value chain	§ Addressing future demands from grand challenges in national and European research programmes to stimulate development of new sustainable custom-made materials (producers) and designs (professional construction services) (EU, MS) § Stimulate public and private demand for excellence in life performance of constructions - lower maintenance costs/life-cycle costing and the development of innovative business models and solutions through financial incentives, contractual arrangements (DBFOM, PFI, etc.) and regulation (EU, MS) § Increase industry participation in R&D programmes and uptake of research outputs through demonstrations (incl. living labs) of new products and processes, tackling insurance issues around prototypes, providing financial incentives and ensuring a stronger orientation of R&D programmes towards industry needs and industrial deployment of technologies (EU, MS, Sector)
Objective 4 Higher sustainability in design, processes, products and operations	§ Strengthening Green and sustainable public procurement initiatives to allow for wider adoption of the comprehensive guidelines at Member States level considering the importance of quality in public procurement (EU, MS) § Using standards, eco-label and regulations (EPBD) to drive innovation into the performance of sustainable solutions covering social, health, safety, economic, and environmental dimensions (EU, MS) § Stimulate employee – and market driven innovation relating to functionality

	in design, products and services through capacity building, demonstrators- and dissemination of best practices, SME support/certification and partnerships with CVET (MS, CVET, intermediaries, sector) § Offering and promoting (incl. ERDF) attractive financial and other incentives for private & public sector owners to initiate sustainable retrofitting (or demolition) with positive impact on social cohesion, inner climate, external environment (e.g. waste reduction per m2), CO• emissions and the share of renewable energy (EU,MS) § Monitor impact of new, methods, materials and solutions on health & safety in processes, CO• emissions, and inner climate; waste (reuse, recycling) per m2 for constructions, share of renewable energy (also considering constructions in operation over time). Where necessary adjust regulations and policies to address new conditions and performances. In relation to this, new performance indicators should be developed to provide a more holistic way of measuring sector performance.
Objective 5 Strengthening the global competitive position of the sector by ensuring a level playing field	§ Assess the practices of EU contracting authorities regarding access of non-EU Enterprises to EU contracts with particular focus on the enforcement of EU rules and regulations in relation to anti-corruption, EU funds, social and environmental requirements and framing of Abnormally Low Tenders. It will be necessary to introduce stricter and more effective enforcement of EU law and regulations. § Monitor the application of state aid regulations to identify possible distorting effects on competitiveness also between public and private real estate investors/developers. Where necessary introduce more effective enforcement of regulations. § Stimulate networking and partnership arrangements as well as the development of a long term vision and strategy for the European Construction sector which can brand it in a global context based on criteria such as high quality, green and sustainable, cost efficient contracting behaviour in developing economies (EU, MS, Sector)

Governance and implementation plan

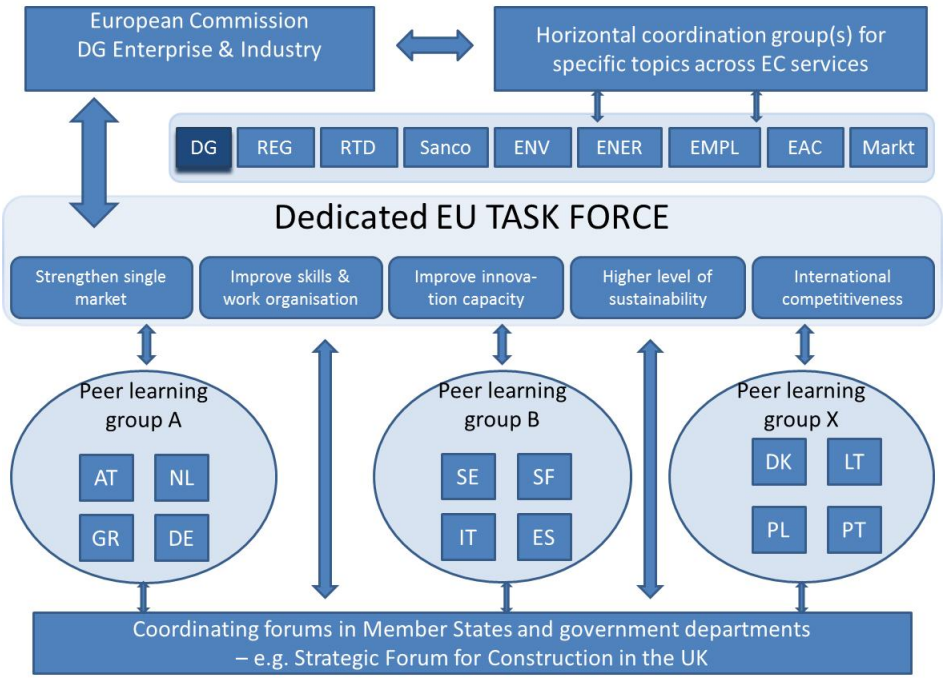
Implementation of the competitiveness agenda for the European Construction sector requires a governance structure that combines horizontal and vertical management, coordination and monitoring.

This could be enabled by:

- A dedicated Task Force to coordinate and monitor the construction specific European policy initiatives;
- A horizontal Commission services coordination group to identify synergies and monitor impacts and effects of different Commission services' initiatives aimed at and impacting on the construction sector;
- Creating country peer learning or cluster networks of Member States that share a focus on specific priorities or problems within the strategy; these should be based on existing networks and European projects.

The governance structure serves the purpose because it allows both for strategic direction from the EU level as well as bottom up initiative from Member States, sector and subsector levels. There is a need for closer cooperation between the subsectors and across the value chains of the construction sector to meet the global grand challenges. Therefore, we propose a single Task Force and not one for each of the subsectors. Subsectors and industry can set up additional groups to prepare input for the Task Force, but any strategic actions need to take into account the implications for the entire value chain and should be based on existing structures and networks.

Figure 0.1 Proposal for governance structure



The establishment of a dedicated Task Force

The purpose of the Task Force will be to initiate, coordinate and monitor the implementation of the initiatives including at Member State and sector level. This Task Force will consist of representatives from Member States (identified, selected and appointed by ministries and/or other relevant public organisations) and European sector organisations and relevant academic experts. The key European sector organisations should represent the different subsectors of construction including Architects, Engineering, Contractors, Construction product suppliers and Real estate developers. SMEs and employee organisations should also be represented at the highest level. Members should be appointed based on relevant competences, experiences, network contacts and leadership capabilities.

The Task Force should meet twice a year to monitor and discuss progress and suggest adjustments to the implementation plan or completely new policy measures or initiatives. As such it should be mandated to:

- Monitor the progress of the sustainable competitiveness agenda for the construction sector;

- Propose new initiatives or adjustments to existing initiatives to improve the sustainable competitiveness of the construction sector;
- Request programme and initiative evaluations or indicator measurements to assess the performance and effects of the agenda and its initiatives;
- Facilitate the contact with and follow up on peer learning networks, existing large scale initiatives and relevant Member State initiatives;
- Propose possibilities for strengthening coordination across Commission services in direct liaison with the coordination group across DGs.

We propose that the European Commission provide a secretariat for the Task Force and allocate sufficient resources to run such a secretariat and its activities. The Secretariat will be responsible for production of discussion papers and background documentation to support decision-making. The Secretariat will be supported by an ad-hoc experts group that can be contracted to deliver these relevant inputs. It is important that this group has a core team of experts to ensure continuation and knowledge sharing.

Strategy framework - Objectives, policy measures and indicators
The Task Force will commence its work with an agreed and approved communication from the European Commission that will describe a set of core objectives as well as operational objectives and actions. For each of the operational objectives, the implementation plan will outline policy measures and indicators to monitor the progress of the strategy. This strategy framework will guide the work of the Task Force and its interaction with the European Commission, the industry, and Member States. The framework will be dynamic and will be assessed and adjusted by the Task Force annually in cooperation with the relevant stakeholders. The European Commission, individual Member States, sector organisations, and peer learning groups can propose well-founded amendments to the strategy framework based on changes in framework conditions.

Coordination of policy initiatives across European Commission services

A DG coordination group should be established to address themes that cut across Commission services as well as general policy coordination in the EC on issues and initiatives affecting the sustainable competitiveness of the construction sector. This group should address possible synergies, overlaps, inefficiencies and other coordination issues linked to the key contributions of construction to the EU 2020 strategy and other relevant EU goals.

Apart from a core group of participants, the DGs should coordinate internally who will lead and attend the meetings of the group depending on topic. The group will have a secretariat led by a member of the core group based at DG Enterprise and Industry. This secretariat ensures that meetings and agendas are organised, minutes of meetings are produced and actions are taken. Prior to main task force meetings, the secretariat will report on the results of these coordinating activities. The coordination group should meet three to four times per year. The contractor proposes that the group discuss how coordination and cooperation across EU services can lead to improved contributions of the construction sector to innovation, job creation, social cohesion, energy efficiency, meeting environmental goals and achieving international growth.

Peer learning and knowledge sharing

Although many of the EU goals are reflected in national strategies in most of the EU Member States, there are differences in focus, priority, stage and level of development from country to country and subsector to subsector. Therefore, it is likely that Member States will be interested in seeking active cooperation with other Member States where they have the opportunity to learn from experiences in these countries and vice versa. The establishment of peer learning groups should be actively promoted by the Task Force and should build on existing groups and networks (URBACT, Green Building councils, INTERACT, network of national construction technology platforms, etc.)

The Peer Learning Groups (PLGs) must be supported by a competent coordinator who will organise meetings/visits and report on findings and results to the Task Force. The PLG should (supported by the EC) conduct the following activities:

- Peer learning based on benchmark data, presentation and discussion of approaches to regulation, support initiatives and other instruments (for instance benchmarking PPP results or waste management in construction);
- Knowledge sharing concerning effects of initiatives and regulations (for instance in relation to education & training funds, uptake of existing technologies and R&D results);
- Peer cooperation to exploit opportunities for synergies (for instance within research activities, examination and testing of certification systems and standards);
- Peer cooperation to improve cross border trade and mobility (for instance in relation to construction products, common definitions of qualifications and mobility of workers).

Consultation mechanisms

Consultations on possible new initiatives and impacts of existing initiatives should be carried out by the Task Force as well as by the horizontal coordination group at the European Commission level to ensure that policies and initiatives meet needs and address deficiencies at EU and Member State level.

These consultations will be an important measure in minimising adverse effects on the sustainable competitiveness of the construction sector as well as identifying necessary improvements and adjustments to regulations and initiatives. Equally, the consultations will contribute to the identification of good practices in addressing key issues and problems.

Consultation mechanisms are an obvious opportunity for peer learning groups and Member States to raise problems concerning both horizontal and vertical framework conditions, but also to identify what seems to work and which other factors seem to have a negative impact on the sustainable competitiveness of the construction sector. For example, in terms of addressing the financial crisis which measures worked and which did not work as well in tackling the huge drop in construction activities due to the financial crisis.

Implementation measures

The implementation measures could consist of:

- Capacity building measures: supporting Member States in the implementation of the strategy and establishing a coordination forum to ensure commitment and capacity building of the different actors;
- Road maps for implementing the different parts of the strategy tailored to the state of development in the various Member States and sector organisations;
- Collection and dissemination of good practices relating to different elements of the strategy from Member States, sector organisations and PLGs. Good practices could relate to surveillance of compliance with EU legislation and regulations or achieving uptake of existing enabling technologies in the construction sector;
- An annual review where indicator data are collected for each of the objectives, findings and results achieved at Member State level are reported. The analysis of progress achieved will be presented in an annual review report together with focus areas for the coming period;
- An annual conference where the results of the annual review report, good practices and peer learning results are discussed in several parallel strands in order also to inform the work of the Task Force in the following year.

Key factors for success

The success of the strategy, governance structure and the implementation is based on voluntary action from all stakeholders apart from an ad-hoc group of experts. It is important therefore:

- That the proposed task force is perceived as a legitimate structure for conducting a critical appraisal of sector, subsector and Member State performance. This legitimisation should be ensured at the highest level by the European Commission, European sector organisations and relevant national coordinating agencies for construction;
- To allocate the necessary means and resources to support the implementation and monitoring of the strategy;
- To ensure the buy-in and commitment at Member State level by ensuring a strong fit with the national agenda for construction;
- To facilitate the transfer and implementation of learning points and good practices from reports and peer learning activities into actual changed behaviour in construction and operation of constructions.

Monitoring framework

For each policy intervention a limited number of robust indicators should be defined – where these do not exist in advance linked to the relevant policy objectives (See Annex I for outline list of relevant indicators). These indicators will be used to monitor results and progress towards the policy goals.

Note de synthèse

Contexte

La Commission européenne a prévu de présenter à l'automne 2011 une communication sur la compétitivité durable du secteur de la construction. Cette étude a été lancée en 2010 par la DG Entreprises et industrie de la Commission européenne, Unité G5 « Construction, équipement de pression et métrologie », dans le but d'analyser les besoins du secteur ainsi que la justification et la faisabilité d'adopter une stratégie de compétitivité remaniée pour le secteur européen de la construction dans le contexte de la « Stratégie pour une croissance intelligente 2020 ».

Le point de départ réside dans la Stratégie pour la compétitivité présentée le 4 novembre 1997 dans la communication de la Commission COM (97) 539 intitulée « La compétitivité de l'industrie de la construction ». Ce document décrivait un plan ambitieux pour améliorer la compétitivité du secteur de la construction, comprenant une liste détaillée d'actions prioritaires. La mise en œuvre de ce plan d'action reposait principalement sur la participation volontaire des organisations sectorielles à travers 13 groupes de travail constitués pour examiner les enjeux essentiels et formuler des recommandations d'actions.

La *Stratégie Europe 2020* établit la structure porteuse d'une future stratégie pour la construction axée sur les trois priorités suivantes :

- **une croissance intelligente** : réaliser une économie fondée sur la connaissance et l'innovation ;
- **une croissance durable** : promouvoir une économie plus efficace, plus écologique et plus compétitive ;
- **une croissance inclusive** : soutenir une économie à forte intensité d'emploi assurant la cohésion sociale et territoriale.

Le secteur de la construction revêt une importance stratégique pour l'Union européenne en ce qu'il fournit les bâtiments et les infrastructures qu'exigent le reste de l'économie et de la société. Il représente plus de 10 % du PIB européen et plus de 50 % de la formation de capital fixe. Il forme la plus importante activité économique et le plus gros employeur industriel d'Europe, totalisant près de 20 millions de travailleurs directs. D'après la FIEC[2], la construction implique directement et indirectement quelque 44 millions de travailleurs. 40 à 45 % de la consommation d'énergie de l'Europe est imputable aux

[2] Fédération de l'industrie européenne de la construction.

bâtiments, et 5 à 10 % supplémentaires proviennent de la transformation et du transport de matériaux et d'éléments de construction.

Dans une perspective à moyen à long terme, les infrastructures devront être adaptées aux futurs risques climatiques. La stratégie pour la compétitivité du secteur de la construction devra en outre à l'avenir prendre en considération les enjeux sociaux et environnementaux rencontrés à l'échelle de l'Union européenne et du reste du monde.

Objectifs

L'étude est destinée à fournir un socle à la Commission européenne afin de permettre à ses services d'élaborer une stratégie détaillée pour la compétitivité durable du secteur européen de la construction. En particulier, l'étude :

- examine la position compétitive du secteur européen de la construction ;
- dégage des enseignements de la mise en oeuvre de la stratégie pour la compétitivité de 1997 ;
- identifie et analyse les principaux facteurs qui exercent une influence sur la compétitivité actuelle et future du secteur européen de la construction ;
- recherche et examine les conditions réglementaires et autres conditions-cadres à l'échelle européenne et nationale pour mettre en lumière les principaux défis auxquels doit s'atteler la stratégie à moyen terme ;
- présente un projet de stratégie, de mesures et de plan d'exécution.

Définitions

La compétitivité durable désigne la capacité à réaliser et à maintenir la compétitivité (économique) d'un secteur dans le respect des objectifs du développement durable. Dans le contexte de cette étude, la *durabilité* a trait aussi bien à la contribution qu'apporte le secteur de la construction à la croissance économique, à la cohésion sociale et à l'emploi qu'aux capacités inhérentes au secteur (ou aux entreprises qui le composent) qui lui permettent d'être compétitif sur les marchés ouverts à la concurrence internationale. Elle a également pour corollaire que les performances économiques du secteur doivent être comparées à ses performances dans l'exécution de ses opérations et la consommation de ressources de façon efficace et durable tout en minimisant ses retombées négatives pour l'environnement (autrement dit, en rehaussant le bien-être environnemental).

Le secteur de la construction est défini sur la base de la nomenclature NACE 1.1 et inclut les sous-secteurs suivants :

- fabrication de matériaux de construction : fournisseurs de produits et de composants de construction (y compris grossistes) ;
- construction sur site : préparation du site, construction de bâtiments complets, installation de bâtiments, réalisation et location de matériel de construction ;
- services professionnels de construction (y compris architectes, services d'ingénierie, contrôleurs de coûts et organismes de contrôle des bâtiments) ;
- en complément, l'étude examine l'ampleur et la pertinence du secteur des services immobiliers en ce qu'il constitue une base de clientèle fondamentale du secteur.

Approche et méthodologie

L'étude déploie une série de méthodologies. Son approche est articulée autour du cadre analytique de la compétitivité, qui inclut quatre piliers d'examen globaux de la compétitivité durable du secteur :

- l'examen des entrants, de la structure et des processus du secteur ;
- l'examen des facteurs externes, tels que l'offre et la demande sur le marché, et d'autres facteurs exogènes ;
- l'examen de repères de compétitivité par rapport à des modèles et à des stratégies d'activité ; et
- l'examen des conditions réglementaires et autres conditions-cadres.

Une étude de la littérature et des États membres a été réalisée et une matrice des défis potentiels pour le secteur a été utilisée pour organiser la littérature et les commentaires des États membres en fonction des défis les plus pertinents et des tendances essentielles au niveau des États membres.

La collecte de données a été menée aux niveaux national, européen et international. Différentes sources de données ont été exploitées, parmi lesquelles Eurostat, l'OCDE, Euroconstruct, Amadeus, les offices nationaux des statistiques, ainsi que plusieurs enquêtes, évaluations d'impact et études.

Des lignes directrices semi-structurées ont encadré les entretiens tenus avec les acteurs concernés nationaux et internationaux pour découvrir les facteurs essentiels liés à la compétitivité du secteur de la construction. Ces lignes directrices ont servi dans le cadre d'entretiens avec :

- des représentants du secteur et du gouvernement dans les États membres ;
- des représentants d'entreprises, du secteur et de sous-secteurs sur l'évolution de la compétitivité du secteur de la construction et de ses sous-secteurs ;
- des représentants d'importantes initiatives réglementaires ;
- des représentants d'initiatives destinées à améliorer la compétitivité du secteur de la construction ; et
- des personnes impliquées dans la mise en œuvre de la Stratégie pour la compétitivité de 1997.

Le projet de stratégie et de plan d'exécution a été élaboré au moyen des méthodologies suivantes :

- arborescence des défis/objectifs pour le secteur (outil facilitant la répartition et l'analyse graphique des défis et des objectifs) ;
- cadre de développement politique incluant l'impact, le calendrier, la pertinence, les risques, les ressources et les indicateurs ;
- atelier de développement politique pour la discussion des entrants précités ; et
- évaluation de la stratégie par rapport aux scénarios probables et au scénario idéal.

Structure du rapport

Le chapitre 1 présente un guide de lecture en détaillant le contexte, les objectifs, l'approche, la méthodologie et les tâches essentielles.

Le chapitre 2 définit le secteur de la construction et ses sous-secteurs. Il décrit le secteur au moyen des données structurelles et des indicateurs de performance de base du secteur et de ses sous-secteurs, y compris les segments du marché, l'emploi, la production, la valeur ajoutée et la productivité.

Le chapitre 3 est consacré à un examen de la position concurrentielle du secteur européen de la construction. Plusieurs indicateurs de compétitivité sont passés en revue, notamment les conditions d'activité, divers indicateurs d'entrants dont il peut être supposé qu'ils influencent les performances de compétitivité du secteur de la construction, ainsi que des indicateurs de processus, de production et de performance, des facteurs relatifs à la demande, et les perspectives du marché pour les produits de construction.

Le chapitre 4 met l'accent sur les conditions réglementaires qui régissent le secteur, à savoir la réglementation environnementale, les normes spécifiques au secteur, la réglementation sur la politique de concurrence, le marché du travail et la santé et la sécurité, d'autres conditions-cadres importantes et les paramètres exogènes.

Le chapitre 5 s'intéresse à la mise en œuvre de la *Stratégie pour la compétitivité* de 1997 afin d'en extraire les principales leçons à tirer pour la mise en œuvre de la future stratégie pour la compétitivité durable.

Le chapitre 6 expose les perspectives stratégiques du secteur européen de la construction. Il décrit les défis essentiels et une vision pour le secteur, les objectifs fondamentaux, ainsi que les mesures politiques préconisées sur la base du paysage politique national et européen actuel. Un plan de gouvernance et de mise en œuvre est proposé pour concrétiser la vision et les objectifs.

Structure et performances du secteur de la construction

L'importance du secteur

Le secteur de la construction revêt une grande importance pour l'économie européenne et mondiale. En 2007, il employait dans son ensemble 15 % des personnes actives dans l'industrie européenne (sections C à K, excepté J, de la NACE) et il a produit 10 % du chiffre d'affaires et 15 % de la valeur ajoutée.

La construction sur site a consommé en 2007 des produits intermédiaires issus d'autres secteurs que la construction (section F de la NACE) à hauteur de 750 milliards d'euros, ce qui correspond à quelque 44 % du chiffre d'affaires du sous-secteur. De plus, les services immobiliers ont consommé environ 220 milliards d'euros de produits intermédiaires et de services issus d'autres secteurs en dehors de la construction sur site.

Les performances du secteur entre 2000 et 2007

L'évolution de la construction sur site en prix constants de 2000 à 2007 fait apparaître une augmentation constante du nombre d'entreprises (4 % annuellement) et du nombre de travailleurs (3 % annuellement).

La fabrication de matériaux de construction a enregistré de 2000 à 2007 une hausse du nombre d'entreprises et du nombre de travailleurs légèrement inférieure à la construction sur site (environ 1 % par an). Les services professionnels de construction ont à leur actif la progression la plus sensible du nombre d'entreprises (5 % par an) et du nombre de travailleurs (4 % par an) parmi les trois sous-secteurs étudiés.

Au cours de la majeure partie de la période de 2000 à 2007, à la fois le chiffre d'affaires et la valeur ajoutée de la construction sur site ont connu une croissance plus lente, ou à tout le moins pas plus rapide en prix constants que le nombre de travailleurs (1 à 2 % par an). Le coût croissant du personnel par rapport à l'évolution de la valeur ajoutée à partir de 2005 (4 % par an), ainsi que le raffermissement parallèle du coût moyen du personnel, ont sensiblement freiné la progression de la productivité de la main-d'œuvre ajustée au salaire en 2006 et 2007.

Dans la fabrication de matériaux de construction, le chiffre d'affaires et la valeur ajoutée ont généralement attesté d'une croissance plus rapide, ou à tout le moins aussi rapide en prix constants que le nombre de travailleurs (2 à 3 % par an). Dans les services professionnels de construction, le chiffre d'affaires et la valeur ajoutée en prix constants se sont accrus plus rapidement que dans les deux autres sous-secteurs, mais approximativement au même rythme que le nombre de travailleurs (3 à 4 % par an).

Dans les trois sous-secteurs, la production a témoigné d'une croissance comparativement plus soutenue dans l'UE12 entre 2000 et 2007, même si ses niveaux nominaux de départ étaient faibles (oscillation de 5 à 11 points de pourcentage des taux de croissance annuels).

Les performances du secteur depuis 2007

La crise financière qui s'est déclenchée en 2007 a exercé un effet substantiel sur les activités dans le domaine de la construction sur site. Elle a occasionné en 2007 de nettes diminutions du volume de production et des nouvelles commandes, auxquelles ont succédé en 2008 des reculs correspondants du nombre de travailleurs, des coûts salariaux et des salaires. Depuis cette période, l'UE27 a traversé une succession de trimestres marqués par des changements négatifs, qui n'ont apparemment commencé à s'inverser lentement qu'en 2010/2011 d'après les données disponibles d'Eurostat (et pas dans tous les pays). Les pays dans lesquels les activités de construction ont le plus ralenti depuis 2007 sont surtout ceux qui avaient joui des taux de croissance les plus soutenus jusqu'à 2007. Les répercussions différentes de la crise sur l'évolution des niveaux de production nationaux pourraient également s'expliquer par la nature et l'impact des travaux de construction déjà planifiés, ainsi que par les effets divers des mesures nationales d'incitation.

La crise a principalement touché le marché des bâtiments (évolution trimestrielle moyenne de 2 % du 1er trimestre 2008 au 1er trimestre 2010), tandis que sur le marché de

l'ingénierie civile, l'activité est restée relativement constante après 2007 en termes de volume de production (évolution trimestrielle moyenne de 0 % durant la même période). Un léger redressement de la production totale de la construction est attendu après 2010, mais le niveau de 2006 ne pourra pas être retrouvé avant 2013, d'après les données d'Euroconstruct.

De même, la fabrication de matériaux de construction a souffert de baisses considérables du volume de production et du chiffre d'affaires à partir du début 2007, ainsi que du nombre de travailleurs, des coûts salariaux et des salaires dès le début 2008. Les services professionnels de construction ont en outre été frappés de plein fouet par la crise financière. Une période prolongée de croissance positive du chiffre d'affaires a laissé place à partir du début 2008 à une tendance négative. Cette dégradation coïncide avec les plus fortes diminutions des activités observées tant dans la construction sur site que dans la fabrication de matériaux de construction.

La vente de matériaux de construction

En 2007, les canaux de distribution des produits de construction manufacturés se composaient dans l'UE27 de quelque 190 000 grossistes, qui employaient près de 1,5 million de personnes et ont réalisé un chiffre d'affaires de 462 milliards d'euros. Ce sous-secteur a également été gravement affecté par la crise financière et l'étiolement de la demande dans la construction. Les tendances dans chacune des trois grandes catégories du commerce en gros révèlent toutes une baisse substantielle du chiffre d'affaires qui s'est amorcée au début 2008.

Les services immobiliers

Les services immobiliers affichent une augmentation encore plus prononcée du nombre d'entreprises (10 % par an) et du nombre de travailleurs (6 % par an) que les services professionnels de construction. La crise financière a eu une incidence au moins aussi négative sur les services immobiliers que sur le secteur de la construction dans son ensemble dès lors que la plupart des activités des services immobiliers s'appuient sur la perspective de hausses des prix sur les divers marchés du logement pour les bâtiments résidentiels et non résidentiels.

Les fusions et acquisitions et la concentration du marché

En toute logique eu égard au rôle important des PME (99,9 % du total des entreprises), et spécialement des micro-entreprises (92 %), dans l'emploi et la production dans la construction sur site, la concentration du marché est relativement faible dans ce sous-secteur. En moyenne, les quatre plus grandes entreprises n'ont pas représenté plus d'un tiers du chiffre d'affaires total en 2008. Dans la fabrication de matériaux de construction, au contraire, les quatre plus grandes entreprises ont atteint en moyenne plus de la moitié du chiffre d'affaires total en 2004, de sorte qu'elles possèdent un pouvoir individuel considérable dans le contrôle des prix de vente des matériaux de construction. La crise financière a exercé une influence significative sur le nombre d'opérations de fusions et acquisitions dans le secteur. Après des augmentations constantes d'année en année, des records ont été atteints pour la fabrication de matériaux de construction en 2005/2006 et pour la construction sur site en 2007, après quoi le nombre d'opérations a de nouveau diminué.

Les compétences et l'enseignement

La plupart des travailleurs de la construction sur site sont au moins titulaires d'un diplôme de l'enseignement secondaire supérieur. Une différence substantielle peut être observée entre les moyennes de l'UE15 (61 % de l'emploi total) et de l'UE12 (84 % de l'emploi total), qui traduit notamment les disparités dans l'organisation des systèmes d'enseignement obligatoire. Dans les pays du sud de l'Europe, plus de 60 % des travailleurs de la construction sur site ont seulement accompli des études d'un niveau primaire ou secondaire inférieur. Au fil du temps, la proportion de travailleurs de la construction sur site qui ont effectué des études post-secondaires non supérieures ou des études supérieures s'est accrue, quoiqu'à un rythme annuel plutôt lent, dans l'UE27 entre 2004 et 2008.

L'utilisation des TIC

La proportion des entreprises de la construction sur site de l'UE27 disposant d'un accès à bande large (fixe) à l'internet a rapidement augmenté, passant de moins de 40 % en 2004 à près de 80 % du total des entreprises comptant au moins dix salariés en 2009. Le déploiement de logiciels permettant la gestion électronique des commandes et des achats et/ou l'échange direct d'informations avec les fournisseurs et les clients a quant à lui progressé plus lentement. Parmi les entreprises de la construction sur site employant au moins dix personnes, seule une sur trois environ utilisait les TIC en 2009 pour intégrer ses processus opérationnels internes et à peine une sur dix utilisait les TIC pour intégrer ses processus opérationnels externes.

Les investissements

Les investissements se sont chiffrés à 12 % de la valeur ajoutée de la construction sur site dans l'UE27 en 2007. Les montants totaux d'investissements dans la construction sur site, en particulier dans les bâtiments résidentiels et non résidentiels, ont diminué depuis 2007.

La recherche et le développement

Les dépenses de recherche et développement des entreprises (DRDE) ont atteint en 2007 moins de 0,5 % du chiffre d'affaires de la construction sur site et de la fabrication de matériaux de construction. Ce pourcentage était le plus bas dans la construction sur site, où il s'est établi en 2007 à 0,05 %, ce qui représente en réalité une hausse substantielle par rapport aux niveaux de 2001. Les taux se sont révélés légèrement supérieurs dans les diverses branches de la fabrication de matériaux de construction, malgré des diminutions par rapport à la période 2001-2007. Dans les services professionnels de construction, les DRDE ont frôlé en 2007 les 2 % du chiffre d'affaires.

Dans la dernière Enquête communautaire sur l'innovation en date, menée en 2008, il a été constaté que la part des entreprises qui avaient adopté une innovation technologique au cours des deux années précédentes s'élevait à 20 % dans la construction sur site, à 30 à 40 % dans la fabrication de matériaux de construction et à 42 % dans les services professionnels de construction. Les entreprises de l'UE27 ont été à l'origine de plus de la moitié des demandes de brevets internationaux/au titre du PCT se rapportant à de nouveaux processus et de nouveaux produits déposées à l'Office européen des brevets en 2006.

Les performances environnementales du secteur

La construction sur site et la fabrication de matériaux de construction se caractérisent par la production de grandes quantités de déchets non recyclables. Des efforts sont mis en œuvre depuis la dernière décennie pour le développement de matériaux qui seraient plus faciles à récupérer et à réutiliser, mais leurs retombées ne s'illustreront pas pleinement dans les statistiques de déchets avant un délai de 20 à 30 ans.

Dans le sous-secteur de la fabrication, une tendance s'est dessinée au cours des dernières années en direction de la recherche d'un meilleur bilan environnemental, notamment dans la fabrication des produits minéraux non métalliques divers. En termes d'efficacité de rejet de déchets (quantité de déchets engendrée par unité de production), les entreprises actives dans la fabrication de matériaux de construction dans l'UE12 semblent produire sensiblement plus de déchets que les entreprises de l'UE15. Cet écart pourrait être imputable aux différences dans l'emploi des technologies induites par les coûts supérieurs de la main-d'œuvre dans l'UE15.

La situation concurrentielle du secteur de la construction

La compétitivité du secteur de la construction dans le futur est primordiale non seulement pour ses différents sous-secteurs, mais aussi pour l'économie européenne tout entière. Premièrement, l'amélioration des performances du secteur de la construction stimulerait probablement les performances de la plupart des autres secteurs de l'économie et rehausserait en même temps la qualité de vie des Européens. Deuxièmement, elle contribuerait à aplanir les problématiques liées à l'environnement et au climat. Les améliorations des performances pourraient par exemple mettre l'accent sur :

- le coût total de cycle de vie des biens construits ;
- la satisfaction des futurs besoins des clients et des utilisateurs finaux (de façon flexible) ; et
- la création de constructions qui soient plus saines, sûres et durables (à la fois à la construction et à l'habitation).

La construction sur site

La crise économique actuelle a fortement ébranlé le secteur de la construction. L'affaiblissement substantiel du marché résidentiel, en particulier, a pesé sur la majorité des entreprises de construction. Bon nombre d'entreprises spécialisées dans la construction de nouveaux immeubles résidentiels privés ont soit été déclarées en faillite, soit perdu une grande partie de leur marché ou encore réorienté leurs activités dans le logement public et/ou les travaux de maintenance. Les entreprises de construction opérant sur d'autres marchés ont toutefois également été affectées. Le secteur a néanmoins pu préserver son équilibre grâce aux investissements publics et aux mesures de lutte contre la crise des gouvernements - bien que tous ne soient pas durables sur le plan économique à moyen terme.

Une série de facteurs sont susceptibles d'influencer la compétitivité du secteur à l'avenir (à un horizon de 10 ans) et d'améliorer la qualité et la productivité :

- l'accès à une main-d'œuvre qualifiée ;
- l'accès au financement et à de nouveaux modèles financiers ;

- le resserrement des relations avec les clients et les utilisateurs finaux et l'innovation dans les produits ;
- la professionnalisation des clients ;
- l'accès à la R&D appliquée et au transfert de technologies, notamment dans les nouvelles technologies, les matériaux et les solutions et bâtiments intelligents et éco-efficaces ;
- de nouveaux modèles de services s'adjoignant aux activités concrètes de construction, de remise en état et de rénovation ;
- la conception modulaire et le pré-assemblage ;
- la coordination entre les acteurs aux fins d'une construction rationnelle ; et
- l'exploitation de futurs marchés de croissance en dehors de l'Union européenne.

L'accomplissement de progrès au niveau de ces facteurs nécessitera l'implication non seulement des entreprises de construction, mais aussi certainement des autres maillons de la chaîne de création de valeur de la construction, depuis les fournisseurs de matériaux jusqu'aux utilisateurs finaux, en passant par les clients, les opérateurs financiers et les assureurs.

La fabrication de matériaux de construction

Jusqu'à la crise financière, le sous-secteur de la fabrication de matériaux de construction enregistrait de bons résultats en Europe à la fois en termes de chiffres d'affaires, de valeur ajoutée et d'emploi. À l'heure actuelle, ses perspectives de croissance pour les prochaines années sont toutefois moins encourageantes. Des investissements publics et privés dans des projets de construction sont indispensables afin d'aider le secteur à surmonter la crise. Le sous-secteur de la fabrication de matériaux de construction en Europe est également confronté à d'immenses défis de compétitivité eu égard aux coûts croissants de l'énergie et des matières premières.

D'une part, l'absence d'uniformité dans les conditions d'activité à l'échelle mondiale pourrait entraîner une délocalisation dans des pays extérieurs à l'Europe, où l'environnement réglementaire est plus souple. D'autre part, l'environnement réglementaire pourrait aiguillonner la compétitivité et l'innovation dans le secteur si les opérateurs non européens sont contraints, tout au long de la chaîne de création de valeur, de respecter les dispositions de l'Union européenne sur les marchés appartenant à son territoire, y compris lorsqu'ils jouent un rôle de sous-fournisseurs.

Enfin, la normalisation occupe une place incontournable dans le sous-secteur de la fabrication de matériaux de construction, et la multiplicité des normes et des régimes d'agrément nationaux fait obstacle à la réalisation du marché intérieur des matériaux de construction. L'élaboration et l'application de règles et de normes européennes (p. ex. remplacement de la DPC par le RPC, normes de conception Eurocodes, directive sur l'écoconception, etc.) sont fondamentales pour l'expansion et la compétitivité futures du secteur. De même, la certification de produits, de services professionnels de construction et de processus essentiels pourrait constituer le moteur d'une croissance et d'une plus grande internationalisation du secteur.

Les services professionnels de construction

À ce jour, le sous-secteur des services professionnels de construction n'est pas à même de profiter pleinement des futurs changements des marchés et des exigences des clients. Il est extrêmement fragmenté le long des frontières nationales et chaque pays possède ses propres pratiques, réglementations et traditions culturelles distinctes. Un obstacle se dresse donc pour les entreprises qui souhaiteraient étendre leurs activités à une échelle internationale. Le problème est encore aggravé en raison de la persistance de nombreux obstacles aux échanges internationaux dans les services.

D'après une étude menée par le CAE (2010), les perspectives économiques sont extrêmement moroses pour les architectes européens. 65 % des répondants d'un échantillon représentatif affirment que la situation actuelle est mauvaise, voire très mauvaise, pour les activités d'architecture en Europe. Ce degré de pessimisme est inchangé depuis la première étude qui a intégré les répercussions de la crise financière, en avril 2009. 36 % des répondants indiquent en outre que leur personnel s'est réduit en avril 2010 par rapport à septembre 2008. Les espoirs d'une intensification des activités pour le trimestre débutant en avril 2010 étaient en revanche plus solides qu'à aucun moment depuis la première étude réalisée par le CAE en avril 2009.

Nonobstant de nombreuses fusions et acquisitions au cours des dernières années, les micro-entreprises restent nettement prépondérantes dans les perspectives à moyen terme actuelles du secteur. Les perspectives à long terme des architectes seront tributaires de l'adaptation du sous-secteur à deux paramètres :

- la priorité accordée à la conception pour la fonction et non plus simplement à la conception pour la forme ;
- la mise au point et l'utilisation de nouveaux produits de construction et d'exigences de durabilité.

Comme dans la plupart des autres secteurs économiques, les fusions et acquisitions jouent un rôle croissant dans le renforcement de la compétitivité des entreprises de services de construction - mais principalement pour la poignée de grands opérateurs de ce sous-secteur. La pratique n'est en effet pas courante chez les petites entreprises.

Les coûts résultant de manquements dans le processus de construction sont relativement élevés et représentent un risque considérable pour les services professionnels de construction. Les clients témoignent d'un intérêt grandissant pour les solutions totales et les initiatives à financement privé. En parallèle, tant les clients que les entrepreneurs remarquent que les contrats de ce type peuvent également grever les projets de risques accrus pour les clients et les fournisseurs. La gestion des risques est donc un important sujet de préoccupation pour le sous-secteur. De plus en plus, les entreprises conçoivent et utilisent des systèmes de modélisation des informations sur les bâtiments afin d'appuyer la gestion des projets et l'intégration du processus complet de la construction.

L'inertie dans les pratiques actuelles constitue une difficulté pour les services professionnels de construction. Un déploiement plus large des TIC pourrait permettre une innovation dans les processus. Il existe des tendances à une diversification accrue dans de nouveaux services et à une spécialisation dans des services à haute valeur ajoutée ou des types de construction particuliers (p. ex. éoliennes, maisons passives, etc.).

Les grands contrats groupés et complexes tendent à favoriser les grandes entreprises et aiguisent l'impératif d'une bonne gestion de projet. La gestion de projet au nom du client forme en conséquence un domaine substantiel dans les services professionnels de construction. Dans le cadre de grands contrats groupés et complexes, les PME des services professionnels de construction peuvent en outre plus difficilement affronter la concurrence. Elles doivent davantage se concentrer sur la participation à des partenariats et à des consortiums pour bénéficier d'une part de ce marché. Simultanément, des procédures d'appel d'offres et des conditions contractuelles rationnelles et non discriminatoires pourraient contribuer à garantir l'accès des PME aux marchés de construction.

Bien que les futurs marchés de croissance se situent dans les marchés de l'UE12 et à l'extérieur de l'Europe, le sous-secteur des services professionnels de construction reste principalement appelé à exercer ses activités sur les marchés nationaux et les autres marchés européens traditionnels. L'on trouve toutefois aussi des exemples de croissance internationale, notamment, par le biais de projets d'ONG ou d'une expansion aux côtés de clients nationaux et européens dans d'autres marchés internationaux.

Les organismes de contrôle de la construction traversent également une transformation en Europe. Le système traditionnel d'une pleine responsabilité publique reste le plus fréquemment appliqué en Europe, mais les exemples se multiplient de solutions partiellement publiques et partiellement privées, ainsi que de solutions totalement privées. Le principal avantage de l'adoption de solutions privées réside dans l'obtention de systèmes de contrôle de la construction de meilleure qualité et plus efficaces, tandis que son principal inconvénient a trait au manque potentiel de fiabilité connexe.

Conditions réglementaires et conditions-cadres affectant la compétitivité du secteur

Les conditions réglementaires et autres conditions-cadres affectant la compétitivité du secteur de la construction ont été scindées entre les conditions réglementaires résultant des directives pertinentes, les autres conditions-cadres telles que les compétences, l'accès au financement, etc., et les conditions exogènes telles que la durabilité et les avancées technologiques.

Conditions réglementaires

Le secteur européen de la construction est soumis à un certain nombre d'exigences réglementaires et de normes nationales et européennes sur la consommation d'énergie, les risques et l'impact pour l'environnement, la santé et la sécurité, la qualité des produits, etc. Ces prescriptions font peser un coût administratif sur les entreprises du secteur.

Dans l'ensemble, les représentants du secteur épinglent trois principaux défis politiques pour lesquels les conditions réglementaires influencent la compétitivité des entreprises européennes de construction et le développement du secteur :

- le fardeau administratif inhérent à l'administration et à la documentation du respect des exigences réglementaires et des normes ;

- les différents degrés de mise en œuvre nationale des règles et des normes européennes, qui font obstacle à la réalisation du marché intérieur.

Il sera important, pour le développement et la compétitivité du secteur à l'avenir, que ces défis politiques soient pris en compte dans le futur programme stratégique du secteur.

Autres conditions-cadres

Une série de conditions-cadres pourraient jouer un rôle de catalyseurs et/ou d'obstacles dans le développement et la compétitivité du secteur à l'avenir. Les représentants du secteur ont désigné à cet égard les défis essentiels suivants :

- le niveau des investissements dans le secteur doit être augmenté ;
- la hausse des coûts de l'énergie, des matières premières et des salaires met gravement en péril la compétitivité du secteur, et une attention aiguë doit être accordée aux efforts tendant à maîtriser ces coûts ;
- il deviendra probablement de plus en plus difficile à l'avenir d'attirer des compétences à cause de la diminution de la population active européenne dans les prochaines années. Les forts taux actuels de chômage dans le secteur dus à la crise financière pourraient aggraver la situation à plusieurs égards, notamment par une détérioration des compétences parmi la main-d'œuvre européenne actuelle à la suite de longues périodes de chômage et par le faible attrait du secteur pour les jeunes talents lié à l'insécurité des perspectives d'emploi ;
- l'accès des entreprises du secteur aux connaissances et aux technologies de pointe en Europe nécessitera probablement davantage d'investissements publics et privés dans la R&D. En particulier, les petites et moyennes entreprises éprouvent des difficultés à accéder aux connaissances et aux technologies sous une forme susceptible d'améliorer leurs capacités et leurs performances ;
- l'accès au financement s'est sensiblement rétréci dans le sillage de la crise financière. Ce facteur pourrait menacer la pérennité et la future expansion des entreprises du secteur, notamment à cause de son incidence sur les clients des services immobiliers, qui se montrent actuellement réticents à s'engager dans des activités de développement, et au moins en partie en raison d'un manque de financement.

Conditions exogènes

L'avenir du secteur de la construction en Europe sera empreint par les avancées technologiques, la pression concurrentielle croissante et la stratégie pour la durabilité. La stratégie pour la durabilité occupe d'ores et déjà le cœur de l'attention dans toutes les branches du secteur européen de la construction. Les entreprises européennes de construction étudient par ailleurs le potentiel de l'industrialisation à travers le recours à de nouvelles technologies, mais l'adoption de technologies arrivées à maturité - spécialement les TIC - pourrait être davantage renforcée.

Enseignements de la stratégie pour la compétitivité de 1997 pour la construction

Dans l'ensemble, les quatre objectifs stratégiques de la Stratégie pour la compétitivité de 1997 ont gardé leur pertinence et leur position de piliers dans les politiques nationales en faveur du secteur de la construction. Ainsi, la plupart des États membres mènent ou préparent à ce jour des initiatives abordant la qualité, l'environnement réglementaire, les compétences et le socle de connaissances dans la construction. L'on peut néanmoins

supposer que les objectifs de la Stratégie pour la compétitivité de 1997 ne resteront pas indéfiniment pertinents compte tenu de la nature mouvante des priorités et de la mutation rapide des marchés mondiaux et des paramètres de la construction.

À l'échelle européenne, les acteurs concernés saluent dans un consensus général le succès relatif de la Stratégie pour la compétitivité de 1997 en ce qu'elle a fait fonction de catalyseur pour une amélioration de la qualité, de l'efficacité et de la durabilité de la construction en Europe, et il semble que le cas échéant, les problèmes potentiels se sont principalement posés au niveau de la mise en œuvre aux échelons inférieurs.

La Stratégie pour la compétitivité de 1997 présentait un plan ambitieux, qui était toutefois doté de ressources restreintes et reposait essentiellement sur les contributions volontaires de l'industrie et des États membres. Cela a principalement exercé une influence préjudiciable sur l'ampleur de la facilitation, du suivi et de la coordination, et partant, sur l'ampleur du travail accompli dans les groupes de travail.

Dans l'optique de la future stratégie pour la compétitivité, les principaux enseignements sont les suivants :

- définition d'un plus petit nombre d'objectifs communs, qui soient plus visionnaires, mesurables et susceptibles d'être communiqués, afin de favoriser les avancées et l'engagement pour les programmes stratégiques - solutions adaptées à des pays ou des groupes de pays spécifiques ;
- mise en place d'un lien renforcé entre la stratégie pour la compétitivité et les programmes de RDTI par le biais d'une série d'indicateurs permettant de mesurer les progrès ;
- attention accrue dans la mise en œuvre à la nature des réseaux d'information et à l'importance des relais de connaissances existants afin de soutenir activement la mise en œuvre ; et
- engagement solide et coordination entre partenaires multiples à l'échelle nationale à travers les différentes initiatives nationales.

Perspectives stratégiques du secteur

Défis fondamentaux

Facteurs internes (chaîne de création de valeur et de fourniture)

Performances d'innovation médiocres dans le secteur. Il est indispensable de stimuler la participation à la R&D, le transfert de technologies et l'innovation non issue de la R&D par le biais d'une innovation portée par les marchés et les travailleurs, en réunissant les entreprises dans des réseaux et des pôles afin de surmonter les difficultés d'échelle.

Faibles niveaux de productivité. L'innovation portée par les marchés et les travailleurs n'est pas bien déployée parce que l'attention est principalement accordée au prix le plus bas et non à la proposition la plus avantageuse en termes économiques, mais aussi parce que les technologies de facilitation sont peu déployées et que les méthodes d'organisation flexible du travail ne sont pas suffisamment employées. Le secteur se prive ainsi d'opportunités de procurer une valeur ajoutée substantielle à l'économie, de prendre à bras-le-corps les immenses défis qui se posent à lui et d'accroître sa rentabilité.

Les **déficits de compétences** dans d'importants segments du secteur peuvent empêcher le secteur de renforcer sa compétitivité et de satisfaire aux nouvelles exigences du marché en ce qui concerne des produits et des services de construction à hautes performances. Un problème tient à ce que les compétences génériques inhérentes aux emplois et aux professions du XXI^{e} siècle sont seulement abordées et intégrées jusqu'à présent dans les dispositions de l'EFP et de l'EFPC à des degrés divers. Or, les compétences génériques telles que la prise en compte et la résolution des problèmes, la communication, la conception et l'esprit d'entreprise sont essentielles pour la collaboration entre différents corps de métiers au sein d'équipes de travail et pour l'exploitation de la création de valeur ajoutée au niveau des entreprises.

Facteurs externes (paramètres du marché et demande)

Environnement macro-économique général. Au cours de la crise financière, le secteur a été touché par des baisses sensibles de la demande, notamment sur le marché résidentiel privé, mais également dans d'autres domaines. Le marché des infrastructures se révèle à ce jour le moins ébranlé en raison d'investissements programmés préalablement. Les dépenses publiques subissent toutefois également une pression à la suite de la crise (les objectifs ont été fixés de réduire les déficits de 50 % d'ici à 2013 et d'atteindre l'équilibre entre les recettes et les dépenses publiques d'ici à 2016). Certains pays ont investi dans des mesures d'incitation au titre d'une stratégie de sortie de crise. Il pourrait toutefois leur être reproché que les incitants qui ne contribuent pas à une augmentation de la productivité et de la capacité d'innovation et à une amélioration du respect de l'environnement dans l'économie auront nécessairement un effet limité - y compris sur l'emploi.

Évolution démographique. Le vieillissement des sociétés est appelé à influencer les futures recettes fiscales des États et la disponibilité de main-d'œuvre et à créer de nouvelles opportunités de marché pour le secteur.

Fonctionnement du marché de l'emploi. À la faveur du redressement de l'économie, il est probable que la concurrence redémarre à l'intérieur de l'Union européenne pour le recrutement de travailleurs qualifiés, et le secteur pourrait à nouveau être confronté à des pénuries ou des déficits de compétences dans certains pays.

Moteurs essentiels du changement structurel. Certains défis mondiaux peuvent devenir les catalyseurs d'une croissance durable à moyen terme si les mesures appropriées sont prises immédiatement. Cela pourrait en effet aboutir au développement d'une série de services technologiques destinés à régler des problématiques telles que la santé et la sécurité, l'efficacité énergétique, la construction verte et la qualité de l'air à l'intérieur des bâtiments, ainsi qu'à des processus et des matériaux de rénovation sur mesure. S'ils sont relevés correctement, ces défis pourraient également donner naissance à de nouvelles opportunités de marché pour le secteur dans les pays en développement.

Exigences de facilité. Dans une mesure croissante, les clients et les utilisateurs exigent de meilleures performances de leurs constructions. Les utilisateurs escomptent des solutions pratiques à court, moyen et long terme de la part du secteur de la construction. Parmi leurs principaux désidératas figurent une maintenance réduite, l'automatisation, la

flexibilité, les propriétés favorables à la santé, une intégration optimale dans l'environnement, etc.

Aspects relatifs à la concurrence

Perspectives de croissance restreintes sur les marchés européens. Dès lors que les marchés européens de la construction devraient d'après les prévisions prospérer à un rythme moindre que les marchés émergents, par exemple, dans les pays du BRIC, le secteur doit endosser et conserver une plus forte orientation mondiale.

Structures industrielles fragmentées. Les marchés du secteur européen de la construction et le secteur lui-même sont extrêmement fragmentés, abritant très peu de grandes entreprises de construction seulement. Dans la plupart des États membres, les entreprises ne participent guère à des organisations professionnelles, de sorte qu'il est difficile de diffuser les bonnes pratiques. De plus, une faible intégration de la chaîne de valeur a une incidence préjudiciable sur les effets de retombée de l'innovation que peut engendrer la collaboration. Cela s'illustre dans de profondes disparités des performances concurrentielles du secteur entre les États membres.

Concurrence internationale (mondiale) croissante. Le secteur rencontre une concurrence croissante issue de l'extérieur de l'Union européenne. Les organisations sectorielles ont mis en lumière des problèmes de concurrence déloyale de la part d'entreprises publiques bénéficiant d'aides d'État illicites sur les marchés européens de la construction et elles craignent par ailleurs une concurrence déloyale de la part d'entreprises de pays tiers ne respectant pas la législation européenne sur l'emploi, l'environnement et la concurrence. Les preuves s'accumulent pour démontrer que dans certains pays, les pressions budgétaires entraînent les marchés publics d'infrastructures en direction d'offres de soumissionnaires non européens à un prix anormalement bas. Les entreprises chinoises se sont par exemple positionnées dans des pays en développement qui ont joui ces dernières années d'une croissance positive et qui investissent donc lourdement dans le développement de leurs infrastructures. De même, les marchés non européens sont le théâtre d'une concurrence croissante émanant d'opérateurs internationaux profitant d'aides d'État, de coûts de main-d'œuvre extrêmement compétitifs et de niveaux élevés de compétences et de technologies.

Conditions réglementaires et autres conditions-cadres

Cadre réglementaire. Eu égard aux facteurs décrits plus haut, le secteur opère dans un environnement réglementaire de plus en plus rigoureux. Les défis ne portent pas seulement sur l'élaboration de règles, mais aussi sur leur application effective au niveau national. De plus, l'harmonisation des normes et des certifications entre les États membres fait défaut. Le manque de respect du cadre réglementaire par certains concurrents constitue une menace en ce qu'il pourrait déséquilibrer le champ d'action européen et mondial pour les investisseurs, les promoteurs et les fournisseurs de produits et de services de construction.

Accès au financement. Eu égard à la crise financière, aux retards de paiement des clients, à une gestion financière déficiente et à la rentabilité douteuse de certaines actions

du secteur de la construction, l'accès au financement est jalonné d'embûches dans le secteur. De même, les dépréciations sensibles de la valeur des bâtiments en Europe et ailleurs influent lourdement sur l'accès au financement et aux investisseurs pour les nouveaux projets de construction. En particulier, les projets de construction plus spéculatifs éprouvent des difficultés à attirer des capitaux.

Vision pour le futur secteur européen de la construction

Considérant les défis que rencontre le secteur ainsi que la stratégie et les priorités UE 2020, il pourrait être pertinent de réfléchir à la vision exposée ci-après pour une future communication sur la compétitivité durable du secteur de la construction.

D'ici à 2020, un secteur européen de la construction durable et compétitif :

- conceptualisera, concevra, construira, exploitera et transformera des constructions sur la base des performances tout au long du cycle de vie (coût/bénéfice) et de modèles de haute qualité ;
- sera un secteur de travail attrayant, qui offrira d'excellentes opportunités en termes de qualité d'emploi, de santé et de sécurité, de rémunération et de progression de carrière ;
- proposera des constructions (bâtiments & infrastructures) qui seront et pourront être adaptées aux besoins économiques et sociaux en mutation des particuliers, des entreprises et des sociétés (y compris les catégories de la population à besoins particuliers pertinentes) ;
- fournira des solutions novatrices et innovantes, qui satisferont aux exigences liées aux grands défis mondiaux (climat, sécurité, etc.) :
  - aidera l'Union européenne à réaliser ses objectifs d'efficacité énergétique des bâtiments pour 2050 ;
  - atteindra ou dépassera l'objectif de 70 % de recyclage des déchets ;
  - respectera les exigences de qualité de l'air à l'intérieur des bâtiments ;
- sera un partenaire attrayant pour les clients sur les marchés de croissance existants et émergents ;
- enregistrera des performances économiques remarquables.

Objectifs

Afin de donner corps à cette vision, cinq objectifs faîtiers ont été définis :

- objectif 1 : renforcer le marché unique de la construction grâce à une réglementation plus efficace ;
- objectif 2 : améliorer le socle de compétences et les pratiques des organisations sectorielles grâce à la professionnalisation et aux partenariats entre le secteur public et privé ;
- objectif 3 : améliorer les capacités et les performances d'innovation du secteur sous toutes leurs formes afin d'accroître la productivité, la durabilité et la valeur ajoutée à toutes les étapes de la chaîne de valeur ;
- objectif 4 : augmenter la durabilité dans la conception, les produits, les processus et les activités ;
- objectif 5 : consolider la position concurrentielle globale du secteur.

Mesures politiques recommandées

Objectif 1 Renforcer le marché unique de la construction grâce à une réglementation plus efficace	§ Contrôler et soutenir la mise en œuvre du règlement sur les produits de construction, des normes minimales sur la santé et la sécurité, du règlement sur les qualifications professionnelles et d'autres dispositions (UE & EM). § Clarifier certaines parties de la directive sur les services afin de permettre aux entreprises de services de construction d'accéder aux marchés européens (UE & EM). § Soutenir la mise en œuvre effective de la directive sur les retards de paiement telle que modifiée (UE & EM) afin d'assurer que toutes les entreprises de la chaîne de valeur de la construction soient payées dans des délais raisonnables.
Objectif 2 Améliorer le socle de compétences et les pratiques des organisations sectorielles grâce à la professionnalisation et aux partenariats entre le secteur public et privé	§ Établir des partenariats stratégiques entre l'industrie et les instituts d'enseignement et de formation afin d'assurer, premièrement, que les systèmes nationaux d'EFP et d'EFPC dispensent une formation à la construction dont le contenu et le mode d'organisation soient suffisamment flexibles pour répondre à la diversité des demandes dans le secteur, et deuxièmement, que les instituts d'enseignement et de formation, en conjonction avec le secteur, soient capables d'identifier les changements naissants susceptibles d'influencer les demandes de compétences à moyen terme. Une priorité essentielle doit être accordée au soutien au renforcement des capacités de gestion (notamment pour les PME) dans des domaines fondamentaux, comme les ressources humaines, les finances, la qualité, et la santé et la sécurité (EM, EFPC & secteur). § Soutenir le développement des compétences à travers la diffusion et l'échange de bonnes pratiques auprès des acteurs nationaux (UE) et à travers la négociation d'accords collectifs et les droits à l'EFPC au niveau sectoriel local et/ou national. § Améliorer les capacités stratégiques à déployer les TIC, p. ex. systèmes de gestion des informations sur la construction, systèmes de facturation électronique et systèmes d'ERP/de comptabilité, dans les activités des entreprises, et à créer des modèles d'activité et des produits par le biais d'initiatives gouvernementales et sectorielles et de partenariats de l'industrie avec les instituts d'EFPC (secteur, EM, organismes intermédiaires & instituts d'EFPC). § Améliorer les capacités et les systèmes des départements d'achat des clients publics et privés pour sélectionner les propositions les plus avantageuses économiquement et tenir compte des paramètres de durabilité pertinents dans les contrats de construction, en fournissant aux petites entreprises des lignes directrices faciles à utiliser - y compris des conseils en ligne faciles d'accès, en élaborant des outils standard d'évaluation des propositions et en formulant des normes sur les rôles des clients, des conseillers et des entreprises (UE, secteur, EM, banques & instituts d'EFPC). § Les États membres et les organisations sectorielles devraient envisager de lancer et de soutenir des campagnes visant à rendre le secteur de la construction plus attrayant pour les talents (EM & secteur).

Objectif 3 Améliorer les capacités et les performances d'innovation du secteur sous toutes leurs formes afin d'accroître la productivité, la durabilité et la valeur ajoutée à toutes les étapes de la chaîne de valeur	§ Aborder les futures exigences liées aux grands défis dans les programmes de recherche nationaux et européens afin de stimuler la création de nouveaux matériaux (producteurs) et de nouveaux concepts (services professionnels de construction) personnalisés durables (UE & EM). § Encourager la demande publique et privée d'excellence dans les performances des constructions tout au long du cycle de vie - coûts de maintenance réduits/calcul des coûts du cycle de vie, et la conception de modèles et de solutions d'activités innovants par le biais d'incitants financiers, de clauses contractuelles (CCFEE, PFI, etc.) et de règlements (UE & EM). § Intensifier la participation de l'industrie aux programmes de R&D et l'adoption des résultats de la recherche par le biais de démonstrations (y compris laboratoires vivants) de nouveaux produits et processus, résoudre les problèmes d'assurance à partir de prototypes, fournir des incitants financiers et garantir une orientation accrue des programmes de R&D vers les besoins de l'industrie et le déploiement industriel des technologies (UE, EM & secteur).
Objectif 4 Augmenter la durabilité dans la conception, les produits, les processus et les activités	§ Renforcer les initiatives de marchés publics écologiques et durables afin de permettre l'adoption plus large des lignes directrices détaillées au niveau des États membres sur l'importance de la qualité dans les marchés publics (UE & EM). § Utiliser des normes, des écolabels et des règlements (directive sur la performance énergétique des bâtiments) pour traduire l'innovation dans les performances de solutions durables sur les questions sociales, de santé, de sécurité, économiques et environnementales (UE & EM). § Stimuler l'innovation portée par les travailleurs et les marchés sur la fonctionnalité dans la conception, les produits et les services à travers le renforcement des capacités, la démonstration et la diffusion des bonnes pratiques, le soutien/la certification des PME et les partenariats avec l'EFPC (EM, EFPC, intermédiaires & secteur). § Offrir et promouvoir (y compris FEDER) des incitants financiers et autres attrayants aux propriétaires du secteur privé et public pour réaliser une remise en état durable (ou une démolition), qui a un effet positif sur la cohésion sociale, la qualité de l'air intérieur, l'environnement extérieur (p. ex. réduction des déchets au m²), les émissions de CO_2 et la part d'énergie renouvelable (UE & EM). § Surveiller l'impact des nouvelles méthodes et solutions et des nouveaux matériaux sur la santé et la sécurité dans les processus, les émissions de CO_2 et la qualité de l'air intérieur, les déchets (réutilisation et recyclage) par m² de construction et la part d'énergie renouvelable (en tenant également compte de l'utilisation des constructions dans le temps). Au besoin, adapter les réglementations et les politiques pour intégrer les nouvelles conditions et performances. Dans ce cadre, de nouveaux indicateurs de performance devraient être conçus afin de fournir un moyen plus holistique de mesurer les performances du secteur.
Objectif 5 Consolider la position concurrentielle globale	§ Évaluer les pratiques des autorités européennes de passation de marchés sur l'accès des entreprises non européennes aux contrats européens, en mettant spécialement l'accent sur l'application des règles et

du secteur en assurant que tous les acteurs soient sur un pied d'égalité	réglementations de l'UE sur la lutte contre la corruption, les fonds européens, les prescriptions sociales et environnementales et l'identification des soumissions à un prix anormalement bas. Il sera indispensable de mettre en œuvre une exécution plus rigoureuse et plus efficace de la législation et de la réglementation de l'UE. § Surveiller l'application des dispositions sur les aides d'État afin de repérer les éventuels effets de distorsion de la concurrence, y compris entre les investisseurs/les promoteurs immobiliers publics et privés. Au besoin, faire appliquer plus efficacement la réglementation. § Stimuler les accords de mise en réseau et de partenariat, ainsi que la conception d'une vision et d'une stratégie à long terme pour le secteur européen de la construction, de façon à inscrire le secteur dans un contexte global sur la base de critères tels qu'une pratique de passation de marchés de haute qualité, écologique, durable et à haut rendement coût/efficacité dans les économies en développement (UE, EM & secteur).

Gouvernance et plan d'exécution

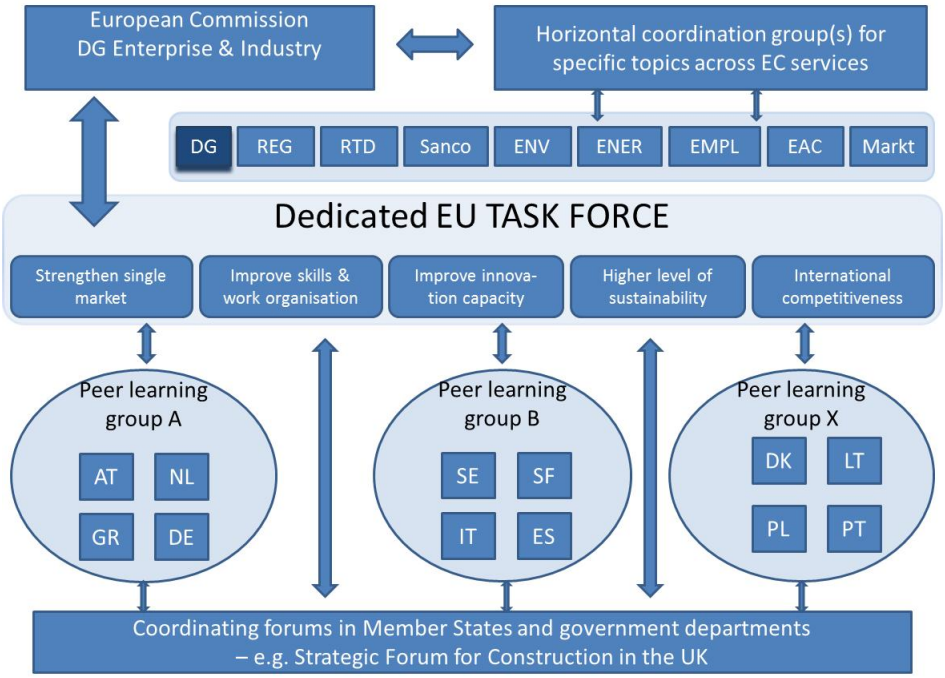
La mise en œuvre de la stratégie pour la compétitivité dans le secteur européen de la construction requiert une structure de gouvernance qui allie une gestion, une coordination et un suivi dans un axe à la fois horizontal et vertical.

À cette fin, les moyens suivants pourraient être mis en œuvre :

- une task-force spécifique chargée de coordonner et d'observer les initiatives politiques européennes se rapportant à la construction ;
- un groupe horizontal de coordination des services de la Commission chargé d'identifier les synergies et de contrôler les effets des initiatives des différents services de la Commission ciblant et influençant le secteur de la construction ;
- la création de réseaux nationaux d'apprentissage par les pairs ou de pôles d'États membres partageant un intérêt pour des priorités ou des problèmes spécifiques dans le cadre de la stratégie, lesquels devraient s'appuyer sur les réseaux et les projets européens existants.

La structure de gouvernance est utile à cette ambition en ce qu'elle permet à la fois une orientation stratégique depuis le niveau de l'Union européenne et une initiative ascendante depuis les niveaux des États membres, des secteurs et des sous-secteurs. La coopération doit être resserrée entre les sous-secteurs et à travers la chaîne de valeur du secteur de la construction afin de relever les grands défis mondiaux. C'est pourquoi nous suggérons une task-force unique, et non une task-force distincte pour chaque sous-secteur. Les sous-secteurs et l'industrie peuvent constituer des groupes supplémentaires pour préparer leurs contributions à la task-force, mais toute action stratégique doit prendre en considération les implications pour la chaîne de valeur tout entière et s'appuyer sur les structures et les réseaux existants.

Figure 0.1 Proposition de structure de gouvernance



Commission européenne DG Entreprises et industrie			Groupe(s) horizontal (horizontaux) de coordination pour divers sujets entre les services de la CE	
DG - REG - RDT - Sanco - ENV - ENER - EMPL - EAC - Marché				
TASK FORCE européenne spécifique				
Renforcer le marché unique	Améliorer les compétences & l'organisation du travail	Améliorer les capacités d'innovation	Augmenter le niveau de durabilité	Compétitivité internationale
Groupe d'apprentissage par les pairs A AT - NL GR - DE		Groupe d'apprentissage par les pairs B SE - SF IT - ES		Groupe d'apprentissage par les pairs X DK - LT PL - PT
Forums de coordination dans les États membres et les ministères des gouvernements - p. ex. Strategic Forum For Construction au Royaume-Uni				

Création d'une task-force spécifique

La task-force aurait pour mandat de mettre sur les rails, de coordonner et de contrôler l'application des initiatives, y compris au niveau des États membres et du secteur. Elle se composerait de représentants des États membres (désignés, sélectionnés et nommés par les ministères et/ou d'autres organismes publics pertinents) et des organisations sectorielles européennes, ainsi que des experts du monde académique. Les principales organisations sectorielles européennes devraient représenter les différents sous-secteurs de la construction, y compris les architectes, les ingénieurs, les contractants, les fournisseurs de produits de construction et les promoteurs immobiliers. Les PME et les organisations de travailleurs devraient également être représentées au plus haut niveau.

Les membres devraient être désignés sur la base de leurs compétences, de leurs expériences, de leur appartenance à des réseaux et de leurs capacités de direction pertinentes.

La task-force devrait tenir deux réunions annuelles pour prendre acte et discuter des progrès et proposer des adaptations au plan d'exécution ou de nouvelles mesures ou initiatives politiques. Ses attributions devraient inclure à ce titre les tâches suivantes :

- observer les progrès de la stratégie pour la compétitivité durable dans le secteur de la construction ;
- proposer de nouvelles initiatives ou des adaptations aux initiatives existantes afin d'améliorer la compétitivité durable du secteur de la construction ;
- demander des évaluations de programmes et d'initiatives ou des mesures d'indicateurs afin d'étudier les performances et les effets de la stratégie et de ses initiatives ;
- faciliter l'établissement de relations et le suivi dans les réseaux d'apprentissage par les pairs, les initiatives à grande échelle existantes et les initiatives pertinentes des États membres ;
- proposer des possibilités de renforcement de la coordination entre les services de la Commission en liaison directe avec le groupe de coordination entre les DG.

Nous proposons que la Commission européenne fournisse un secrétariat à la task-force et lui alloue des ressources suffisantes pour gérer un tel secrétariat et ses activités. Le secrétariat serait chargé de la production de documents de discussion et d'information qui seraient utilisés à l'appui de la prise de décision. Il serait soutenu par un groupe d'experts ad hoc, qui pourrait être engagé à titre contractuel pour fournir ces contributions. Il est important que ce groupe soit doté d'une équipe de base d'experts afin d'assurer la continuité et le partage des connaissances.

Canevas de la stratégie : objectifs, mesures politiques et indicateurs
La task-force commencerait ses travaux sur la base d'une communication approuvée et adoptée par la Commission européenne, qui énumérerait une liste d'objectifs essentiels ainsi que d'objectifs opérationnels et d'activités. Pour chaque objectif opérationnel, le plan de mise en œuvre comprendrait les mesures politiques et les indicateurs permettant de contrôler les progrès de la stratégie. Ce canevas régirait les travaux de la task-force et ses interactions avec la Commission européenne, l'industrie et les États membres. Il serait dynamique et il serait examiné et adapté à intervalles annuels par la task-force en coopération avec les acteurs pertinents. La Commission européenne, les États membres, les organisations sectorielles et les groupes d'apprentissage par les pairs pourraient proposer des amendements justifiés au canevas de la stratégie à la suite de changements des conditions-cadres.

Coordination des initiatives politiques entre les services de la Commission européenne

Un groupe de coordination entre les DG devrait être créé afin de traiter les questions transversales aux services de la Commission et de prendre en charge la coordination politique générale au sein de la Commission sur les sujets et les initiatives qui influencent la compétitivité durable du secteur de la construction. Il devrait aborder les synergies potentielles, les chevauchements, les inefficacités et les autres aspects de la coordination

liés aux principales contributions de la construction à la stratégie UE 2020 et aux autres objectifs pertinents de l'Union européenne.

En marge d'un noyau de participants de base, les DG devraient coordonner à un niveau interne les personnes habilitées à diriger les réunions du groupe, et à y assister, en fonction des sujets à l'ordre du jour. Ce groupe posséderait un secrétariat chapeauté par un membre du noyau de base appartenant à la DG Entreprises et industrie. Ce secrétariat garantirait l'organisation de réunions, la définition de programmes, la rédaction de comptes rendus des réunions et la réalisation d'actions. Avant les principales réunions de la task-force, le secrétariat présenterait un rapport sur les fruits de ces activités de coordination. Le groupe de coordination devrait se réunir trois à quatre fois par an. Nous proposons que le groupe examine comment la coordination et la coopération parmi les services de l'Union européenne peuvent aboutir à une contribution accrue du secteur de la construction à l'innovation, à la création d'emplois, à la cohésion sociale, à l'efficacité énergétique, au respect des objectifs environnementaux et à la réalisation d'une croissance internationale.

Apprentissage par les pairs et partage des connaissances

Même si de nombreux objectifs de l'Union européenne se reflètent dans les stratégies nationales de la majorité des États membres, des disparités peuvent être constatées d'un pays à l'autre et d'un sous-secteur à l'autre dans l'orientation, les priorités et le stade et le niveau de développement. Il est donc probable qu'il intéresserait les États membres de rechercher une coopération active avec d'autres États, dans laquelle ils auraient l'occasion de tirer les leçons des expériences engrangées dans ces pays et inversement. La création de groupes d'apprentissage par les pairs doit être encouragée activement par la task-force et s'appuyer sur les groupes et les réseaux existants (URBACT, conseils pour la construction écologique, INTERACT, réseau des plates-formes nationales sur les technologies de construction, etc.).

Les groupes d'apprentissage par les pairs devraient fonctionner sous la houlette d'un coordinateur compétent, qui organiserait les réunions/les visites et qui présenterait leurs constats et leurs résultats à la task-force. Ils devraient (avec le soutien de la Commission) accomplir les activités suivantes :

- apprentissage par les pairs à la lumière de données de référence, présentation et discussion d'approches de la réglementation, initiatives de soutien et autres instruments (p. ex. étalonnage des résultats des PPP ou de la gestion des déchets dans la construction) ;
- partage de connaissances sur les effets des initiatives et des réglementations (p. ex. en ce qui concerne les ressources d'enseignement et de formation, l'adoption des technologies existantes et les résultats de R&D) ;
- coopération entre les pairs afin de mettre à profit les opportunités de synergies (p. ex. dans les activités de recherche, l'examen et l'essai de systèmes de certifications et les normes) ;
- coopération entre les pairs afin d'améliorer les échanges et la mobilité au-delà des frontières (p. ex. en ce qui concerne les produits de construction, les définitions communes de qualifications et la mobilité des travailleurs).

Mécanismes de consultation

Une consultation sur les nouvelles initiatives potentielles et les effets des initiatives existantes devrait être menée par la task-force et par le groupe horizontal de coordination au niveau de la Commission européenne afin d'assurer que les politiques et les initiatives répondent aux besoins et comblent les lacunes au niveau de l'Union et des États membres.

Cette consultation jouerait un rôle important pour minimiser les effets négatifs pour la compétitivité durable du secteur de la construction et pour identifier les améliorations et les adaptations requises des réglementations et des initiatives. De même, elle contribuerait à l'identification des bonnes pratiques dans la résolution des difficultés et problématiques essentielles.

Les mécanismes de consultation offriraient aux groupes d'apprentissage par les pairs et aux États membres une enceinte idéale pour soulever les problèmes relatifs aux conditions-cadres tant horizontales que verticales, mais aussi pour mettre en lumière ce qui semble fonctionner et les autres facteurs qui semblent exercer une influence néfaste sur la compétitivité durable du secteur de la construction. À propos de la lutte contre la crise financière, il pourrait par exemple être possible de repérer quelles mesures ont bien fonctionné et lesquelles n'ont pas réussi à contrer l'effondrement des activités de construction.

Mesures d'exécution

Les mesures d'exécution pourraient inclure les suivantes :

- mesures de renforcement des capacités - soutenir les États membres dans la mise en œuvre de la stratégie et créer un forum de coordination afin d'assurer l'engagement et le renforcement des capacités parmi les différents acteurs ;
- feuilles de route pour la mise en œuvre des différentes facettes de la stratégie adaptées au stade de développement des États membres et des organisations sectorielles spécifiques ;
- collecte et diffusion de bonnes pratiques sur les différentes composantes de la stratégie auprès des États membres, des organisations sectorielles et des groupes d'apprentissage par les pairs. Les bonnes pratiques peuvent porter sur le contrôle du respect de la législation et de la réglementation de l'Union européenne et sur l'adoption des technologies de facilitation existantes dans le secteur de la construction ;
- examen annuel dans lequel des données indicatives seraient recueillies pour chaque objectif et un rapport serait rédigé sur les observations et les résultats atteints au niveau des États membres. Le rapport d'examen annuel exposerait l'analyse des progrès accomplis et les axes prioritaires pour la période suivante ;
- conférence annuelle dans laquelle les conclusions du rapport d'examen annuel, les bonnes pratiques et les résultats de l'apprentissage par les pairs feraient l'objet de discussions parallèles, dans le but également d'orienter les travaux de la task-force pour l'année suivante.

Principaux facteurs de réussite

La réussite de la stratégie, de la structure de gouvernance et de la mise en œuvre dépend d'une démarche volontaire de toutes les parties prenantes, excepté un groupe d'experts ad hoc. En conséquence, il est important :

- que la task-force proposée soit reconnue en tant que structure légitime pour réaliser un examen critique des performances du secteur, des sous-secteurs et des États membres. Cette légitimité doit être assurée au niveau le plus éminent par la Commission européenne, les organisations sectorielles européennes et les agences nationales pertinentes de coordination de la construction ;
- que les moyens et les ressources nécessaires soient alloués pour la mise en œuvre et le suivi de la stratégie ;
- d'assurer l'adhésion et l'engagement au niveau des États membres en garantissant une bonne concordance avec les stratégies nationales sur la construction ;
- de faciliter le transfert et l'application des leçons et des bonnes pratiques issues des rapports et des activités d'apprentissage par les pairs dans une pratique concrète adaptée de la construction et du fonctionnement des constructions.

Cadre de suivi

Pour chaque intervention politique, il convient de définir un nombre limité d'indicateurs solides, excepté s'il en existe déjà préalablement dans le cadre des objectifs politiques concernés (cf. Annexe I pour la liste récapitulative des indicateurs pertinents). Ces indicateurs serviront à observer les résultats et les progrès en direction des objectifs politiques.

Kurzfassung

Hintergrund

Im Herbst 2011 wird die Europäische Kommission eine Mitteilung in Bezug auf die nachhaltige Wettbewerbsfähigkeit des Baugewerbes vorlegen. Diese Studie wurde im Jahr 2010 von der GD Unternehmen und Industrie, Referat G5 „Baugewerbe, Druckgeräte und Messwesen“ der Europäischen Kommission mit dem Ziel initiiert, die Bedürfnisse des Baugewerbes sowie die Grundlage und Machbarkeit der Lancierung einer erneuerten Wettbewerbsagenda für das europäische Baugewerbe im Rahmen der Agenda für intelligentes Wachstum *Smart Growth Agenda 2020* zu analysieren.

Ausgangspunkt ist die Wettbewerbsagenda aus dem Jahr 1997, die in der Mitteilung KOM(97)539 „Mitteilung über die Wettbewerbsfähigkeit der europäischen Bauwirtschaft“ vom 04. November 1997 vorgestellt wurde. Die Agenda umfasste einen ehrgeizigen Plan für eine verbesserte Wettbewerbsfähigkeit des Baugewerbes mit einer umfangreichen Liste vorrangiger Aktivitäten. Die Umsetzung des Aktionsplanes beruhte hauptsächlich auf freiwilligen Beiträgen der Branchenverbände mittels 13 Arbeitsgruppen, die eingerichtet wurden, um die wesentlichen Herausforderungen zu untersuchen und Empfehlungen für das weitere Vorgehen auszusprechen.

Die *Strategie Europa 2020* bildet den Rahmen für eine Zukunftsstrategie für das Baugewerbe und konzentriert sich auf die folgenden drei Prioritäten:

- **Intelligentes Wachstum**: Entwicklung einer auf Wissen und Innovation gestützten Wirtschaft
- **Nachhaltiges Wachstum**: Förderung einer ressourcenschonenden, ökologischeren und wettbewerbsfähigeren Wirtschaft
- **Integratives Wachstum**: Förderung einer Wirtschaft mit hoher Beschäftigung und ausgeprägtem sozialen und territorialen Zusammenhalt

Das Baugewerbe ist von strategischer Bedeutung für die Europäische Union, denn es errichtet die Gebäude und Infrastrukturanlagen, die von allen Wirtschaftszweigen und der Gesellschaft benötigt werden. Es umfasst mehr als 10 % des europäischen Bruttoinlandsproduktes und mehr als 50 % der Bruttoanlageinvestitionen. Es ist der größte alleinstehende Wirtschaftszweig und der größte branchenspezifische Arbeitgeber in Europa. Im Baugewerbe sind unmittelbar fast 20 Millionen Arbeitnehmer beschäftigt. Laut der FIEC[3], sind mittelbar und unmittelbar ungefähr 44 Millionen Arbeitsplätze mit dem Baugewerbe verbunden. Zwischen 40 % und 45 % des europaweiten

[3] Fédération de l’industrie européenne de la construction - Verband der Europäischen Bauwirtschaft

Energieverbrauchs sind auf Gebäude zurückzuführen und weitere 5-10 % auf die Verarbeitung und den Transport von Bauprodukten und Bauelementen.

Mittel- und langfristig wird sich die Infrastruktur an die zukünftigen Gefahren für das Klima anpassen müssen. Darüber hinaus wird sich die zukünftige Wettbewerbsstrategie für das Baugewerbe den Herausforderungen in Bezug auf Umwelt und Gesellschaft innerhalb der Europäischen Union und auf der ganzen Welt stellen müssen.

Ziele

Die Studie soll der Europäischen Kommission eine Grundlage bieten, auf der die Dienste der Kommission eine umfassende Strategie für eine nachhaltige Wettbewerbsfähigkeit des europäischen Baugewerbes ausarbeiten können. Die Studie wird insbesondere:

- die Wettbewerbsposition des europäischen Baugewerbes beurteilen;
- Lernansätze aus der Umsetzung der Wettbewerbsagenda aus dem Jahr 1997 ausarbeiten;
- Schlüsselfaktoren, die die gegenwärtige und zukünftige Wettbewerbsfähigkeit des europäischen Baugewerbes beeinflussen, ermitteln und analysieren;
- die regulatorischen und sonstigen Rahmenbedingungen auf europäischer und mitgliedsstaatlicher Ebene untersuchen und beurteilen, um die wesentlichen Herausforderungen zu ermitteln, denen sich die mittelfristige Strategie stellen muss;
- den Entwurf einer Strategie, eines Aktions- und eines Umsetzungsplans vorlegen.

Definitionen

Die nachhaltige Wettbewerbsfähigkeit reflektiert die Fähigkeit, die (wirtschaftliche) Wettbewerbsfähigkeit der Industrie in Übereinstimmung mit nachhaltigen Entwicklungszielen zu erreichen und zu bewahren. Im Rahmen dieser Studie bezieht sich *Nachhaltigkeit* sowohl auf den Beitrag, den das Baugewerbe zum Wirtschaftswachstum, zum sozialen Zusammenhalt und zur Beschäftigung leistet, als auch auf die Fähigkeit des Sektors (oder der dazugehörigen Unternehmen), in Märkten zu konkurrieren, die offen für internationalen Wettbewerb sind. Nachhaltigkeit beinhaltet auch, dass die wirtschaftliche Leistung des Baugewerbes mit seiner Leistung in Bezug auf die Ausführung von Verfahren und den Einsatz von Ressourcen auf effiziente und nachhaltige Weise bei gleichzeitiger Verringerung der negativen Auswirkungen auf die Umwelt (beispielsweise Verbesserung des ökologischen Wohlergehens) verglichen werden muss.

Das Baugewerbe wurde anhand der statistischen Systematik der Wirtschaftszweige in der Europäischen Gemeinschaft (NACE Rev. 1.1) definiert und umfasst die folgenden Untersektoren:

- Herstellung von Baumaterial: Lieferanten von Bauprodukten und Bauelementen (einschließlich Großhandel);
- Baustellenarbeiten: Vorbereitung der Baustelle, Bau kompletter Gebäude, Bauinstallation, Fertigstellung und Vermietung von Baumaschinen;
- Professionelle Baudienstleistungen (einschließlich Architekten, Ingenieursdienstleistungen, Kostenkontrolle und Bauaufsicht).

- Zusätzlich untersucht die Studie die Bedeutung und Relevanz des Sektors für Immobiliendienstleistungen als wichtige Kundenbasis des Baugewerbes.

Ansatz und Methodologie

Die Studie nutzt verschiedene Methoden. Der Kern des Ansatzes ist der analytische Rahmen zur Bestimmung der Wettbewerbsfähigkeit. Dieser analytische Rahmen umfasst vier übergreifende Beurteilungen der nachhaltigen Wettbewerbsfähigkeit des Sektors:

- Beurteilung der Beiträge, Struktur und Prozesse im Baugewerbe;
- Beurteilung der externen Faktoren, wie Angebot und Nachfrage und andere von außen wirkende Faktoren;
- Beurteilung konkurrierender Referenzwerte in Bezug auf Geschäftsmodelle und -strategien;
- Beurteilung der regulatorischen und sonstigen Rahmenbedingungen.

Es wurden eine Literaturstudie und eine Überprüfung der Mitgliedsstaaten durchgeführt und eine Vorlage möglicher Herausforderungen für den Sektor benutzt, um die Ergebnisse aus der Literaturstudie und den Mitgliedsstaaten in Bezug auf die relevanten Herausforderungen und wesentlichen Entwicklungen auf mitgliedsstaatlicher Ebene zu organisieren.

Die Sammlung der Daten erfolgte auf nationaler, europäischer und internationaler Ebene. Dabei wurden verschiedene Datenquellen benutzt, einschließlich Eurostat, OECD, Euroconstruct, Amadeus, Statistikämter der einzelnen Länder, verschiedene Umfragen, Beurteilungen der Auswirkungen und Studien.

Semistrukturierte Befragungsleitlinien wurden für die Befragung von nationalen und internationalen Interessenvertretern verwendet, um wichtige Faktoren in Bezug auf die Wettbewerbsfähigkeit des Bausektors zu ermitteln. Die Befragungsleitlinien wurden für Befragungen verwendet von:

- Vertretern der Regierung und des Baugewerbes der einzelnen Mitgliedsstaaten;
- Unternehmens-, Sektor- und Untersektorvertretern in Bezug auf Entwicklungen in der Wettbewerbsfähigkeit des Baugewerbes und der Untersektoren;
- Vertretern wichtiger regulatorischer Initiativen;
- Vertretern von Initiativen mit dem Ziel, die Wettbewerbsfähigkeit des Baugewerbes zu verbessern;
- Personen, die an der Umsetzung der Wettbewerbsagenda aus dem Jahr 1997 mitwirkten.

Der Strategieentwurf und der Entwurf des Umsetzungsplanes wurden anhand der folgenden Methoden entwickelt:

- Aufstellung der Herausforderungen/Ziele für den Sektor (Baumdiagramm: ein Werkzeug zur Aufspaltung und graphischen Analyse der Herausforderungen und Ziele);
- Rahmen zur Entwicklung eines Konzeptes, das die Auswirkungen, den Zeitablauf, die Bedeutung, die Risiken, die Ressourcen und die Indikatoren abdeckt;

- Workshop zur Konzeptentwicklung, in dem die vorgenannten Beiträge besprochen werden;
- Beurteilung der Strategie in Bezug auf zukünftige Szenarien und Vergleich mit einem idealen Szenario.

Berichtsstruktur

Kapitel 1 enthält Informationen zum Bericht, beispielsweise Hintergrund, Ziele, Ansatz, Methodologie und Schlüsselaufgaben.

Kapitel 2 definiert das Baugewerbe und seine Untersektoren. In diesem Kapitel wird der Sektor anhand von wichtigen strukturellen Daten und Leistungsindikatoren des Sektors und seiner Untersektoren beschrieben, einschließlich Marktsegmente, Beschäftigung, Produktion, Wertschöpfung und Produktivität.

Kapitel 3 beinhaltet eine Beurteilung der Wettbewerbsposition des europäischen Baugewerbes. Es werden verschiedene Indikatoren für die Wettbewerbsfähigkeit berücksichtigt, einschließlich Geschäftsbedingungen, verschiedene Input-Indikatoren, von denen angenommen werden kann, dass sie die Wettbewerbsleistung des Baugewerbes beeinflussen, sowie Verfahrens-, Output- und Leistungsindikatoren, Nachfragefaktoren und Marktaussichten für Bauprodukte.

Kapitel 4 konzentriert sich auf die regulatorischen Bedingungen, die den Sektor betreffen, beispielsweise Umweltrichtlinien, industriespezifische Standards, Wettbewerbsrichtlinien, Arbeitsmarktrichtlinien, Gesundheits- und Sicherheitsrichtlinien, sonstige wichtige Rahmenbedingungen und von außen wirkende Bedingungen.

Kapitel 5 untersucht die Umsetzung der *Wettbewerbsagenda 1997*, um die wesentlichen Lernansätze in Bezug auf die Umsetzung der zukünftigen nachhaltigen Wettbewerbsstrategie zu ermitteln.

Kapitel 6 enthält die strategischen Aussichten für das europäische Baugewerbe. Es beinhaltet die wesentlichen Herausforderungen sowie eine Zukunftsvision für den Sektor, wichtige Ziele und empfohlene politische Maßnahmen auf der Grundlage der bestehenden europäischen und nationalen politischen Landschaft. Ein Governance- und Umsetzungsplan wird vorgeschlagen, um die Zukunftsvision und die Ziele zu erreichen.

Struktur und Leistung des Baugewerbes

Bedeutung des Sektors

Das Baugewerbe ist für die europäische und weltweite Wirtschaft wichtig. Der gesamte Sektor beschäftigte 2007 15 % aller in der europäischen Wirtschaft beschäftigten Personen (NACE-Abteilungen C bis K, ohne J) und erwirtschaftete 10 % des Umsatzes und 15 % der Wertschöpfung.

Im Jahr 2007 verbrauchten die Baustellenarbeiten Zwischenprodukte aus anderen Sektoren (NACE-Abteilung F) im Wert von EUR 750 Milliarden, was ungefähr 44 % des Umsatzes des Untersektors entspricht. Zusätzlich verbrauchten

Immobiliendienstleistungen Zwischenprodukte und Dienstleistungen aus anderen Sektoren, ohne die Baustellenarbeiten, im Wert von fast EUR 22 Milliarden.

Leistung des Sektors 2000-2007

Die Entwicklung der Baustellenarbeiten zwischen 2000 und 2007 im Vergleich zu 2000 bei gleichbleibenden Preisen zeigt eine stetig wachsende Zahl von Unternehmen (jährlich: 4 %) und Beschäftigten (jährlich: 3 %).

In der Herstellung von Baumaterial stieg die Zahl der Unternehmen und die Zahl der Beschäftigten zwischen 2000 und 2007 ebenfalls, allerdings etwas langsamer als bei den Baustellenarbeiten (jährlich: ungefähr 1 %). Die Zahl der Unternehmen (jährlich: 5 %) und Beschäftigten (jährlich: 4 %) stieg in allen drei Untersektoren bei den professionellen Baudienstleistungen am stärksten.

Über den größten Teil des Zeitraumes zwischen 2000 und 2007 stiegen sowohl der Umsatz als auch die Wertschöpfung der Baustellenarbeiten bei gleichbleibenden Preisen langsamer oder wenigstens nicht schneller als die Zahl der Beschäftigten (jährlich: 1-2 %). Steigende Personalkosten im Vergleich zur Wertschöpfung seit 2005 (jährlich: 4 %) und der gleichzeitige Stillstand der durchschnittlichen Personalkosten verringerten die Zuwächse bei der lohngebundenen Arbeitsproduktivität in den Jahren 2006 und 2007.

Der Umsatz und die Wertschöpfung stiegen bei gleichbleibenden Preisen bei der Herstellung von Baumaterial im Allgemeinen schneller oder wenigstens genauso schnell wie die Zahl der Beschäftigten (jährlich: 2-3 %). Der Umsatz und die Wertschöpfung stiegen bei gleichbleibenden Preisen bei den professionellen Baudienstleistungen schneller als in den beiden anderen Untersektoren, jedoch ungefähr mit derselben Geschwindigkeit wie die Zahl der Beschäftigten (jährlich: 3-4 %).

Der Output in allen drei Untersektoren stieg zwischen 2000 und 2007 vergleichsweise schneller in den neuen Mitgliedsstaaten (EU12), wenn auch von niedrigen nominalen Werten (Schwankungen von 5-11 Prozentpunkten bei den jährlichen Wachstumsraten).

Leistung des Sektors ab 2007

Der Ausbruch der Finanzkrise im Jahr 2007 hatte einen erheblichen Einfluss auf die Baustellenarbeiten. Mit der Krise begann das Produktions- und Neuauftragsvolumen im Laufe des Jahres 2007 erheblich zu sinken, was einen entsprechenden Rückgang der Zahl der Beschäftigten, der Bruttolöhne und der Gehälter im Jahr 2008 zur Folge hatte. Seitdem erlebten die 27 Mitgliedsstaaten einige aufeinanderfolgende Quartale mit negativen Änderungen und es scheint sich laut den verfügbaren Daten von Eurostat das Blatt erst 2010/2011 langsam zu wenden (allerdings nicht in allen Ländern). Die Länder mit dem höchsten Rückgang der Bauaktivität seit 2007 sind insbesondere diejenigen, die bis 2007 die höchsten Wachstumsraten verzeichneten. Ein weiterer Grund für die verschiedenen Auswirkungen der Krise auf die Entwicklung der nationalen Produktionsniveaus könnten die Art und die Auswirkungen bereits geplanter Bautätigkeiten sowie die unterschiedlichen Auswirkungen der nationalen Konjunkturprogramme sein.

Die Krise hat vor allem den Markt für Gebäude getroffen (durchschnittliche quartalsweise Änderung von 2 % vom ersten Quartal 2008 bis zum ersten Quartal 2010), während die Aktivität im Markt für Hoch- und Tiefbau nach 2007 in Bezug auf das Produktionsvolumen nahezu konstant geblieben ist (durchschnittliche quartalsweise Änderung von 0 % über denselben Zeitraum). Eine leichte Erholung der gesamten Bautätigkeiten wird für nach 2010 vorhergesagt, aber das Niveau aus dem Jahr 2006 wird laut den Daten von Euroconstruct vor 2013 nicht erreicht sein.

In ähnlicher Weise hat die Herstellung von Baumaterial dramatische Einbrüche des Produktionsvolumens und Umsatzes seit dem Frühjahr 2007 erlebt und ebenso bei der Beschäftigung und den Bruttolöhnen und Gehältern nach dem Frühjahr 2008. Auch die professionellen Baudienstleistungen waren von der Finanzkrise betroffen. Einem anhaltenden Zeitraum positiven Umsatzwachstums folgte ab dem Frühjahr 2008 ein negativer Umschwung. Dieser Rückgang geht mit dem erheblichsten Rückgang der Aktivitäten sowohl bei den Baustellenarbeiten als auch der Herstellung von Baumaterial einher.

Handel mit Baumaterial

Im Jahr 2007 bestanden die Vertriebskanäle für Bauprodukte in den 27 Mitgliedsstaaten aus ungefähr 190.000 Großhandelsunternehmen mit fast 1,5 Millionen Beschäftigten und einem Umsatz von EUR 426 Milliarden. Auch dieser Untersektor wurde schwer von der Finanzkrise und der ausbleibenden Nachfrage aus dem Baugewerbe getroffen. Die Entwicklungen in allen drei umfassenderen Großhandelskategorien zeigen erhebliche Umsatzeinbrüche ab dem Frühjahr 2008.

Immobiliendienstleistungen

Der jährliche Anstieg der Zahl der Unternehmen (10%) und Beschäftigten (6%) im Immobilienbereich war noch grösser als bei den professionellen Baudienstleistungen. Die Finanzkrise hatte auf die Immobiliendienstleistungen wenigstens genauso negative Auswirkungen wie auf das gesamte Baugewerbe angesichts der Abhängigkeit der meisten Aktivitäten bei den Immobiliendienstleistungen von den Aussichten auf steigende Preise auf den verschiedenen Häusermärkten für Wohn- und andere Gebäude.

Fusionen, Übernahmen und Marktkonzentration

In Übereinstimmung mit der wichtigen Rolle der KMU (99,9 % aller Unternehmen) und insbesondere der Mikrounternehmen (92 %) ist die Marktkonzentration bei der Beschäftigung und dem Output bei den Baustellenarbeiten relativ gering. Im Durchschnitt erwirtschafteten die vier größten Unternehmen 2008 mehr als ein Drittel des Gesamtumsatzes. Auf der anderen Seite erwirtschafteten die vier größten Unternehmen bei der Herstellung von Baumaterial 2008 mehr als die Hälfte des Gesamtumsatzes, was eine nicht unerhebliche Macht über die Kontrolle des Verkaufspreises von Baumaterial impliziert. Die Finanzkrise hatte einen maßgeblichen Einfluss auf die Zahl der Fusionen und Übernahmen im Baugewerbe. Nach einem mehrjährigen Anstieg waren die Höhepunkte bei der Herstellung von Baumaterial in den Jahren 2005/2006 und bei den Baustellenarbeiten im Jahr 2007 erreicht, wonach die diesbezüglichen Aktivitäten zurückgingen.

Fähigkeiten und Bildung

Die meisten Beschäftigten im Baugewerbe haben wenigstens eine höhere Schulbildung. Es gibt einen erheblichen Unterschied zwischen dem Durchschnitt in den alten (61 % der Beschäftigten) und neuen (84 % der Beschäftigten) Mitgliedsstaaten, was teilweise die Unterschiede im Aufbau der vorgeschriebenen Bildungssysteme widerspiegelt. Mehr als 60 % der Beschäftigten auf den Baustellen in südeuropäischen Ländern verfügen lediglich über eine geringe Schulbildung. Im Laufe der Zeit nahm der Anteil der Beschäftigten auf den Baustellen mit einer höheren Schulbildung oder Hochschulbildung zu, auch wenn der jährliche Zuwachs in den 27 Mitgliedsstaaten in den Jahren 2004 bis 2008 gering war.

IKT-Anwendung

Der Anteil der Unternehmen in der Bauwirtschaft in den 27 Mitgliedsstaaten mit (festem) Breitbandanschluss an das Internet stieg von unter 40 % im Jahr 2004 auf fast 80 % aller Unternehmen mit wenigstens zehn Beschäftigten im Jahr 2009. Die Einführung von Software für die elektronische Auftragsverwaltung und Beschaffung und/oder den direkten Informationsaustausch mit Lieferanten und Kunden verlief langsamer. Nur ein Drittel aller Bauunternehmen mit wenigstens zehn Beschäftigten nutzte im Jahr 2009 Informations- und Kommunikationstechnologie (IKT) zur Integration interner Geschäftsprozesse und nur eines von zehn Unternehmen nutzte IKT zur Integration externer Geschäftsprozesse.

Investitionen

Der Wert der Investitionen stieg 2007 auf 12 % der Wertschöpfung bei den Baustellenarbeiten in den 27 Mitgliedsstaaten. Das gesamte Investitionsvolumen bei den Baustellenarbeiten und insbesondere bei den Wohn- und sonstigen Gebäuden ist seit 2007 gesunken.

Forschung und Entwicklung

Die Unternehmensausgaben für Forschung und Entwicklung betrugen 2007 weniger als 0,5 % des Umsatzes der Baustellenarbeiten und der Herstellung von Baumaterial. Der Anteil war bei den Baustellenarbeiten am geringsten und erreichte 2007 0,05 % des Umsatzes, was einen erheblichen Anstieg im Vergleich zu 2001 bedeutet. In der Herstellung von Baumaterial war der Anteil etwas höher, obwohl er zwischen 2001 und 2007 rückläufig war. Die Unternehmensausgaben für Forschung und Entwicklung erreichten 2007 fast 2 % des Umsatzes bei den professionellen Baudienstleistungen.

Im aktuellen Community Innovation Survey (CIS) aus dem Jahr 2008 lag der Anteil der Unternehmen, die in den vorangegangenen zwei Jahren eine technologische Innovation eingeführt hatten, bei 20 % der Unternehmen bei den Baustellenarbeiten, 30-40 % der Unternehmen bei der Herstellung von Baumaterial und 42 % der Unternehmen bei den professionellen Baudienstleistungen. Die Unternehmen in den 27 Mitgliedstaaten waren 2006 für mehr als die Hälfte aller PCT/internationalen Patentanmeldungen für neue Verfahren und Produkte beim Europäischen Patentamt verantwortlich.

Leistungen des Sektors im Umweltschutz

Die Baustellenarbeiten und die Herstellung von Baumaterial zeichnen sich dadurch aus, dass sie große Mengen nicht recyclingfähigen Mülls produzieren. Die Anstrengungen,

mit denen in Bezug auf die Entwicklung von Materialien, die einfacher zu recyceln und wiederzuverwenden sind, begonnen wurde, werden sich erst in 20 oder 30 Jahren in den Ergebnissen der Abfallstatistiken niederschlagen.

Bei der Herstellung von Baumaterial gab es in den letzten Jahren Anzeichen für einen Wechsel in Richtung eines ökologischeren Profils, insbesondere bei der Herstellung von nichtmetallischen Mineralprodukten. In Bezug auf die Wirtschaftlichkeit (Abfallmenge je Produktionseinheit) scheint bei der Herstellung von Baumaterial in den neuen Mitgliedsstaaten im Vergleich zum Output wesentlich mehr Müll anzufallen als in den alten Mitgliedsstaaten. Dies könnte am unterschiedlichen Einsatz der Technologie infolge der höheren Arbeitskosten in den alten Mitgliedsstaaten liegen.

Die Wettbewerbsposition des europäischen Baugewerbes

Die zukünftige Wettbewerbsfähigkeit des Baugewerbes spielt nicht nur für die verschiedenen Untersektoren eine entscheidende Rolle, sondern auch für die gesamte europäische Wirtschaft. Zum einen wird die Verbesserung der Leistung des Baugewerbes wahrscheinlich auch der Leistung der meisten anderen Wirtschaftszweige zugutekommen und die Lebensqualität der Bürger und Bürgerinnen in Europa verbessern. Zum anderen würde sie einen Beitrag zur Verringerung der Herausforderungen in Bezug auf die Umwelt und das Klima leisten. Verbesserungen der Leistung könnten sich beispielsweise konzentrieren auf:

- die gesamten Lebenszykluskosten von Bauwerken;
- die Befriedigung der zukünftigen Bedürfnisse der Kunden und Endnutzer (auf flexible Art und Weise);
- die Errichtung von Bauwerken, die gesünder, sicherer und nachhaltiger sind (sowohl bei der Nutzung als auch beim Bau).

Baustellenarbeiten

Die aktuelle Wirtschaftskrise hat dem Baugewerbe erheblichen Schaden zugefügt. Insbesondere der signifikante Rückgang auf dem Häusermarkt hat die Mehrheit der Bauunternehmen getroffen. Viele dieser Unternehmen, die sich auf den Neubau von privaten Wohnhäusern spezialisiert haben, gingen in die Insolvenz, haben ihren Personalbestand drastisch verringert oder konzentrieren sich jetzt auf den öffentlichen Wohnungsbau und/oder Instandhaltungsarbeiten. Dennoch waren auch Bauunternehmen, die in anderen Märkten tätig sind, betroffen. Öffentliche Investitionen und staatliche Förderprogramme, die mittelfristig keineswegs wirtschaftlich nachhaltig sind, haben den Sektor über Wasser gehalten.

Einige Faktoren können die zukünftige Wettbewerbsfähigkeit des Sektors beeinflussen (in einer Zehnjahresperspektive) und die Qualität und Produktivität verbessern:

- Zugang zu qualifizierten Arbeitskräften;
- Zugang zu Finanzierung und neuen Finanzierungsmodellen;
- engere Beziehung zu Kunden und Endnutzern und Prozessinnovation;
- Professionalisierung der Kunden;

- Zugang zur angewandten Forschung und Entwicklung und zu technischem Transfer, wie neuen Technologien, Materialien, intelligenten und umweltfreundlichen Lösungen und Gebäuden;
- neue Dienstleistungsmodelle zur Ergänzung derzeitiger Bau-, Umbau- und Sanierungsaktivitäten;
- Modularisierung und Vormontage;
- Koordination der Beteiligten, um Kosten zu sparen;
- Orientierung an zukünftigen Wachstumsmärkten außerhalb der EU.

Um Fortschritte in Bezug auf die vorgenannten Faktoren zu erzielen, müssen nicht nur Bauunternehmen einbezogen werden, sondern auch andere Akteure in der Wertschöpfungskette des Baugewerbes, wie Lieferanten, die Material an Kunden liefern, Finanzdienstleister, Versicherungsgesellschaften und Endnutzer.

Herstellung von Baumaterial

Bis zum Ausbruch der Finanzkrise zeigte dieser Untersektor in Europa in Bezug auf den Umsatz, die Wertschöpfung und die Beschäftigung eine gute Leistung. Dennoch sind die aktuellen Wachstumsaussichten für die kommenden Jahre weniger positiv. Öffentliche und private Investitionen in Bauprojekte werden benötigt, um dem Sektor aus der Krise zu helfen. Die Herstellung von Baumaterial in Europa steht auch vor erheblichen Wettbewerbsherausforderungen in Bezug auf die steigenden Energie- und Rohstoffkosten.

Einerseits könnte das Fehlen fairer Wettbewerbsbedingungen in einer Verlegung von Aktivitäten in Länder außerhalb der Europäischen Union mit einem weniger strengen regulatorischen Rahmen resultieren. Andererseits könnte der regulatorische Rahmen die Wettbewerbsfähigkeit und Innovation in diesem Sektor fördern, wenn Hersteller aus nichteuropäischen Ländern gezwungen werden, die Regularien der Europäischen Union auf den innereuropäischen Märkten zu erfüllen, auch dann, wenn sie als Unterlieferanten agieren.

Schließlich stellt die Standardisierung ein Schlüsselthema für die Herstellung von Baumaterial dar und die unterschiedlichen nationalen Standards und Zulassungssysteme behindern die Realisierung eines innereuropäischen Marktes für Baumaterial. Die Entwicklung und Implementierung europäischer Regularien und Standards (beispielsweise der Wechsel von CPD auf CPR, die Eurocodes (EN), die Ökodesign-Richtlinie usw.) spielen eine entscheidende Rolle für die zukünftige Entwicklung und Wettbewerbsfähigkeit dieses Sektors. Auch die Zertifizierung von Produkten, professionellen Baudienstleistungen und Schlüsselprozessen könnte ein Motor für das Wachstum und die erhöhte Internationalisierung des Sektors sein.

Professionelle Baudienstleistungen

Die professionellen Baudienstleistungen sind derzeit nicht in der Position, in vollem Umfang von den zukünftigen Änderungen in den Märkten und bei der Kundennachfrage zu profitieren. Dieser Untersektor ist innerhalb der jeweiligen Landesgrenzen stark fragmentiert und jedes Land hat seine eigenen Gebräuche, Regularien und Kultur. Dies stellt ein Hindernis für die Aufnahme internationaler Aktivitäten seitens der Unternehmen

dar. Das Problem verschlimmert sich auch aufgrund der vielen Hindernisse für grenzüberschreitende Dienstleistungen.

Laut einer Umfrage des Rates der Europäischen Architekten (ACE) aus dem Jahr 2010 sind die Wirtschaftsaussichten für europäische Architekten sehr schlecht. 65 % der Befragten in einer repräsentativen Umfrage geben an, dass die derzeitige Lage für Architekturbüros in Europa schlecht oder sehr schlecht ist. Dieser Pessimismus ist seit der ersten Umfrage bezüglich der Auswirkungen der Finanzkrise im April 2009 unverändert. Darüber hinaus berichteten 36 % der Befragten, dass sie im Vergleich zum September 2008 im April 2010 Arbeitsplätze abbauen mussten. Dennoch waren die Erwartungen bezüglich einer erhöhten Aktivität für die kommenden drei Monate ab April 2010 höher als zu irgendeinem Zeitpunkt seit der Durchführung der ersten Umfrage durch den ACE im April 2009.

Trotz vieler Fusionen und Übernahmen in den letzten Jahren dominieren Mikrounternehmen die aktuellen mittelfristigen Aussichten des Sektors. Die langfristigen Aussichten für Architekten hängen ab von der Anpassungsfähigkeit des Sektors an:

- die zunehmende Konzentration auf funktionales Design anstelle von ausschließlich gestalterischem Design;
- die Entwicklung und Verwendung neuer Bauprodukte und Nachhaltigkeitsanforderungen.

Wie in vielen anderen Wirtschaftszweigen spielen Fusionen und Übernahmen eine zunehmende Rolle bei den Baudienstleistungsunternehmen zur Weiterentwicklung ihrer Wettbewerbsfähigkeit - aber hauptsächlich für die wenigen Großunternehmen in diesem Untersektor. Bei kleinen Unternehmen ist dies nicht üblich.

Die Kosten infolge von Mängeln am Bau sind relativ hoch und stellen ein erhebliches Risiko für professionelle Baudienstleister dar. Die Kunden zeigen ein zunehmendes Interesse an Komplettlösungen und privat finanzierten Initiativen. Gleichzeitig weisen sowohl die Kunden als auch die Auftragnehmer darauf hin, dass derartige Verträge in einem erhöhten Projektrisiko für die Kunden und Lieferanten resultieren können. Daher ist das Risikomanagement ein wichtiger Schwerpunkt für den Untersektor. Immer mehr Unternehmen entwickeln und verwenden Modellierungssysteme für Baudaten zur Unterstützung des Projektmanagements und der Integration des gesamten Bauprozesses.

Die Unbeweglichkeit der bestehenden Praxis stellt eine Herausforderung für die professionellen Baudienstleistungen dar. Ein stärkerer Einsatz von IKT könnte der Prozessinnovation zugutekommen. Es gibt Trends in Richtung einer zunehmenden Diversifikation neuer Dienstleistungen und Spezialisierungen bei den Dienstleistungen mit besonderer Wertschöpfung oder speziellen Bauarten (beispielsweise Windmühlen, Passivhäuser usw.).

Umfangreiche, gebündelte und komplexe Verträge werden vorzugsweise großen Unternehmen angeboten und erhöhen den Bedarf an gutem Projektmanagement. Somit ist das Projektmanagement für den Kunden ein wichtiger Leistungsbereich für die professionellen Baudienstleistungen. Große, gebündelte und komplexe Verträge erschweren den Wettbewerb für KMU im Bereich der professionellen

Baudienstleistungen. Es besteht der Bedarf einer höheren Konzentration auf die Beteiligung an Partnerschaften und Konsortien, um an diesem Markt teilzunehmen. Zugleich können schlanke und nicht diskriminierende Vergabeverfahren und Vertragsbedingungen einen Beitrag zur Gewährleistung des Zugangs von KMU zu den Märkten leisten.

Obwohl die zukünftigen Wachstumsmärkte in den neuen Mitgliedsstaaten und außereuropäischen Märkten liegen, sind die professionellen Baudienstleistungen immer noch vorzugsweise auf die nationalen und andere traditionelle europäische Märkte abgestimmt. Dennoch gibt es Beispiele für internationales Wachstum durch vor allem Projekte von Nichtregierungsorganisationen (NRO) oder nationale und europäische Kunden, die ihre Aktivitäten auf die internationalen Märkte ausweiten.

Die Bauaufsicht verändert sich ebenfalls in Europa. Obwohl das traditionelle System der vollen öffentlichen Verantwortung das noch stets am weitesten verbreitete in Europa ist, gibt es immer mehr Beispiele für teilweise öffentliche und teilweise private Lösungen sowie vollständig private Lösungen. Der größte Vorteil des Wechsels auf private Lösungen besteht darin, dass bessere und effizientere Kontrollsysteme für das Baugewerbe erreicht werden. Der größte Nachteil besteht in der möglicherweise daraus resultierenden Haftungslücke.

Regulatorische und Rahmenbedingungen, die die Wettbewerbsfähigkeit des Sektors betreffen

Die regulatorischen und anderen Rahmenbedingungen, die die Wettbewerbsfähigkeit des Sektors betreffen, wurden in regulatorische Bedingungen, die relevante Verordnungen umfassen, andere Rahmenbedingungen, wie Fähigkeiten, Zugang zu Finanzierung usw., sowie von außen wirkende Bedingungen, wie Nachhaltigkeit und technologische Entwicklungen, unterteilt.

Regulatorische Bedingungen

Das europäische Baugewerbe unterliegt verschiedenen nationalen und europäischen Regularien und Standards in Bezug auf den Energieverbrauch, Umweltrisiken und -einflüsse, Gesundheit und Sicherheit, Produktqualität usw. Diese Anforderungen und Standards stellen einen erheblichen Kostenfaktor für die Unternehmen in diesem Sektor in Bezug auf die Verwaltung dar.

Insgesamt stellen die Vertreter aus dem Baugewerbe drei wesentliche Herausforderungen in Bezug auf die Auswirkungen der regulatorischen Bedingungen auf die Wettbewerbsfähigkeit der europäischen Bauunternehmen und die zukünftige Entwicklung des Sektors fest:

- die administrative Belastung in Bezug auf die Verwaltung und Dokumentation der Einhaltung der regulatorischen Anforderungen und Standards;
- die unterschiedliche Umsetzung der europäischen Richtlinien und Standards in den einzelnen Mitgliedsstaaten als Hindernis für die Schaffung eines innereuropäischen Marktes.

Dass diese Herausforderungen in die zukünftige Strategie für den Sektor aufgenommen werden, wird für die zukünftige Entwicklung und Wettbewerbsfähigkeit des Sektors entscheidend sein.

Andere Rahmenbedingungen

Es gibt verschiedene Rahmenbedingungen, die die zukünftige Entwicklung und Wettbewerbsfähigkeit des Sektors fördern und/oder behindern können. Vertreter des Baugewerbes stellten die folgenden wesentlichen Herausforderungen für den Sektor fest:

- das Investitionsniveau im Sektor steigt;
- steigende Kosten für Energie, Rohstoffe und Löhne stellen ein großes Problem für die Wettbewerbsfähigkeit des Sektors dar und die Anstrengungen zur Verringerung dieser Kosten sind ein wichtiges Anliegen;
- der Zugriff auf qualifizierte Arbeitskräfte wird aufgrund der Verringerung der europäischen Erwerbsbevölkerung in den kommenden Jahren in Zukunft schwieriger werden. Die derzeit hohe Arbeitslosigkeit im Baugewerbe infolge der Finanzkrise könnte die Situation auf unterschiedliche Weise verschlimmern, einschließlich einer sich daraus ergebenden Verschlechterung der Fähigkeiten bei den derzeit qualifizierten Arbeitskräften infolge der Langzeitarbeitslosigkeit und der eingeschränkten Attraktivität des Sektors für junge Talente aufgrund der unsicheren Beschäftigungsaussichten;
- der Zugang zu innovativer Technologie und Wissen von Unternehmen im europäischen Baugewerbe wird weitere öffentliche und private Investitionen in Forschung und Entwicklung verlangen. Insbesondere kleine und mittelständische Unternehmen haben Schwierigkeiten beim Zugriff auf Technologie und Wissen in einer Form, die ihre Kapazität und Leistung verbessern könnte;
- die Finanzierungsmöglichkeiten wurden infolge der Finanzkrise erheblich eingeschränkt. Dies stellt eine Bedrohung für das Überleben und die zukünftige Entwicklung der Unternehmen in diesem Sektor dar. Nicht zuletzt aufgrund des Einflusses auf die Immobiliendienstleistungen scheuen sich die Kunden teilweise aufgrund mangelnder Finanzierung vor Entwicklungsaktivitäten.

Von außen wirkende Bedingungen

Technologische Entwicklungen, ein steigender Wettbewerbsdruck und die Nachhaltigkeitsagenda werden die Zukunft für das europäische Baugewerbe bilden. Die Nachhaltigkeitsagenda wurde bereits in allen Teilen des europäischen Baugewerbes angesprochen. Darüber hinaus untersuchen die europäischen Bauunternehmen die Möglichkeiten der Industrialisierung durch die Anwendung neuer Technologien, aber die Anknüpfung an fortschrittliche Technologien - nicht nur IKT - könnte weiter gestärkt werden.

Lernansätze aus der Wettbewerbsagenda für das Baugewerbe aus dem Jahr 1997

Insgesamt sind alle vier strategischen Ziele aus der Wettbewerbsagenda aus dem Jahr 1997 noch immer zutreffend und stehen im Mittelpunkt der nationalen Maßnahmen zur Förderung des Baugewerbes. Demnach betreiben oder planen die meisten Mitgliedsstaaten derzeit Initiativen in den Bereichen Qualität, regulatorisches Umfeld, Fähigkeiten und Wissensbasis im Baugewerbe. Es stellt sich die Frage, ob die Ziele der Wettbewerbsagenda 1997 angesichts der Unbeständigkeit dieser Bereiche und der sich

schnell verändernden Weltmärkte und Bedingungen für das Baugewerbe ihre Relevanz für immer behalten werden.

Auf europäischer Ebene gibt es einen allgemeinen Konsens unter den Interessenvertretern über den relativen Erfolg der Wettbewerbsagenda 1997 als Katalysator für eine verbesserte Qualität, Effizienz und Nachhaltigkeit im europäischen Baugewerbe und es besteht die Auffassung, dass etwaige Probleme hauptsächlich bei der Umsetzung auf niedrigeren Ebenen entstanden sind.

Die Wettbewerbsagenda 1997 präsentierte einen ehrgeizigen Plan, wenn auch mit eingeschränkter Finanzierung und primär basierend auf freiwilligen Beiträgen aus der Industrie und den Mitgliedstaaten. Dies hat wahrscheinlich einen negativen Einfluss auf den Umfang der Erleichterung, der Nachverfolgung und der Koordinierung und somit die in den Arbeitsgruppen erreichten Ergebnisse.

Hinsichtlich der zukünftigen Wettbewerbsagenda lauten die wesentlichen Lernansätze:

- weniger, visionärere allgemeine Ziele, die messbar sind und kommuniziert werden können, um den Fortschritt und das Engagement bezüglich der Lösungen für einzelne Länder oder Ländercluster in den strategischen Agendas zu unterstützen;
- Schaffung einer stärkeren Verknüpfung zwischen der Wettbewerbsfähigkeitsagenda und den FTEI-Agendas mithilfe ausgewählter Indikatoren zur Messung des Fortschrittes;
- Umsetzung mit einer stärkeren Konzentration auf die Art von Informationsnetzwerken und die Bedeutung bestehender Wissensvermittler, um die Umsetzung aktiv zu unterstützen;
- starkes Engagement mehrerer Interessenvertreter und Koordinierung auf nationaler Ebene über verschiedene nationale Initiativen hinweg.

Strategische Aussichten für den Sektor

Wichtige Herausforderungen

Interne Faktoren (Wertschöpfungs- und Lieferkette)

Schlechte Innovationsleistung des Sektors. Es besteht der Bedarf zur Förderung der Teilnahme an Forschung und Entwicklung, am Technologietransfer und an nicht auf Forschung und Entwicklung basierenden Innovationen durch Innovationen seitens des Marktes und der Arbeitnehmer sowie an der Umgruppierung der Unternehmen in Netzwerken und Clustern, um Größenprobleme zu lösen.

Schlechtes Produktivitätsniveau. Innovationen seitens des Marktes und der Mitarbeiter werden aufgrund der Konzentration auf das günstigste anstelle des wirtschaftlich vorteilhaftesten Angebots, aber auch aufgrund der schlechten Anwendung von Technologien, die dies ermöglichen, und der unzureichenden Verwendung flexibler Praktiken zur Arbeitsorganisation kaum angewandt. Dem Sektor fehlen die Möglichkeiten, einen maßgeblichen Beitrag zur Wirtschaft zu leisten, die großen Herausforderungen anzugehen und rentabler zu sein.

Spezialisierungen der Arbeitnehmer in großen Teilen des Sektors können den Sektor daran hindern, wettbewerbsfähiger zu werden und neue Anforderungen für Hochleistungsbauprodukte und -dienstleistungen im Markt zu erfüllen. Ein Thema ist, dass die allgemeinen Fähigkeiten, die im 21. Jahrhundert an Arbeitsplätze und Beruf gestellt werden, in unterschiedlichen Niveaus nur in der Berufsausbildung und der beruflichen Fort- und Weiterbildung angesprochen werden. Allgemeine Fähigkeiten wie Problemorientierung, Problemlösung, Kommunikation, Design und unternehmerische Fähigkeiten spielen eine wesentliche Rolle bei der berufsübergreifenden Zusammenarbeit in Arbeitsgemeinschaften und zur Ausnutzung der Wertschöpfung auf Unternehmensebene.

Externe Faktoren (Marktbedingungen und Nachfrage)

Allgemeines makroökonomisches Umfeld. Während der Finanzkrise hatte der Sektor mit erheblichen Nachfrageeinbrüchen zu kämpfen, insbesondere im privaten Wohnungsbau, aber auch in anderen Märkten. Der Infrastrukturmarkt war aufgrund bereits geplanter Investitionen bisher am wenigsten betroffen. Dennoch stehen auch die öffentlichen Ausgaben aufgrund der Krise unter Druck (das Ziel besteht darin, das Defizit bis 2013 um 50 % zu senken und die öffentlichen Aufwendungen und Erträge sollten bis 2016 ausgeglichen sein). Einige Länder haben in Konjunkturprogramme als Teil der Nachkrisenstrategie investiert. Es kann allerdings argumentiert werden, dass Konjunkturprogramme, die nicht zu einer Erhöhung der Produktivität und Innovationskapazität sowie einer ökologischeren Wirtschaft beitragen, einen begrenzten Effekt haben, auch auf die Beschäftigung.

Demographischer Wandel. Die Vergreisung der Gesellschaften wird die zukünftigen steuerlichen Maßnahmen und die Verfügbarkeit von Arbeitskräften beeinflussen und andere Marktchancen für den Sektor eröffnen.

Arbeitsmarktbedingungen. Wenn sich die Wirtschaftslage verbessert, wird der innereuropäische Wettbewerb um qualifizierte Arbeitskräfte zurückkehren und könnte der Mangel an qualifizierten Arbeitskräften im Baugewerbe in einigen Ländern wieder zum Thema werden.

Hauptantriebsfedern der strukturellen Änderung. Es bestehen weltweit Herausforderungen, die mittelfristig ein nachhaltiges Wachstum ermöglichen können, vorausgesetzt, es werden jetzt angemessene Maßnahmen ergriffen, da dies zur Entwicklung einer Reihe von technologischen Dienstleistungen führen könnte, um Themen anzugehen wie Gesundheit und Sicherheit, Energieeffizienz, ökologisches Bauen, gutes Raumklima und Sanierungsprozesse und passende Materialien. Wenn diese Herausforderungen richtig angegangen werden, könnten sie auch neue Marktchancen für das Baugewerbe in den Entwicklungsländern bieten.

Nachfrage nach Zweckmäßigkeit. Immer mehr Kunden und Nutzer verlangen eine bessere Leistung von Bauwerken. Nutzer erwarten vom Baugewerbe kurz-, mittel- und langfristig zweckmäßige Lösungen. Hauptanforderungen sind Wartungsfreiheit, Automatisierung, Flexibilität, gesundheitsfördernde Eigenschaften, optimale Integration in die Umgebung usw.

Relative Wettbewerbsposition

Schlechte Wachstumsaussichten in EU-Märkten. Da erwartet wird, dass die europäischen Märkte im Bausektor langsamer wachsen als die Schwellenmärkte in beispielsweise den BRIC-Staaten, muss der Sektor eine stärkere weltweite Perspektive entwickeln und beibehalten.

Fragmentierte Industriestrukturen. Die Märkte des europäischen Baugewerbes und das Baugewerbe selbst sind sehr fragmentiert, mit nur sehr wenigen großen Bauunternehmen. Die Beteiligung von Unternehmen an Handelsorganisationen ist in den meisten Mitgliedsstaaten sehr gering, weshalb die Verbreitung guter Praktiken schwierig ist. Darüber hinaus hat die schlechte Integration der Wertschöpfungskette einen negativen Einfluss auf die Möglichkeiten zur Übernahme von Innovationseffekten im Rahmen einer Zusammenarbeit. Dies zeigen die großen Unterschiede zwischen den Mitgliedsstaaten in der Wettbewerbsleistung des Sektors.

Zunehmender internationaler (weltweiter) Wettbewerb. Der Sektor steht einer zunehmenden außereuropäischen Konkurrenz gegenüber. Die betreffenden Verbände haben auf Probleme wie einen unlauteren Wettbewerb seitens staatlicher Unternehmen, die von unrechtmäßiger staatlicher Unterstützung auf den europäischen Märkten profitieren, aufmerksam gemacht sowie auf die Angst vor unlauterem Wettbewerb von Unternehmen aus Drittstaaten, die die europäischen Gesetze zu Beschäftigung, Umwelt und Wettbewerb nicht einhalten. Es gibt immer mehr Beweise dafür, dass insbesondere Länder, deren Staatshaushalt unter Druck steht, immer häufiger Aufträge für die öffentiche Infrastruktur an außereuropäische Bauunternehmen mit ungewöhnlich niedrigen Angeboten vergeben. So haben sich beispielsweise chinesische Firmen in Industrieländern positioniert, die in den letzten Jahren ein positives Wachstum erfahren haben und deshalb kräftig in die Infrastrukturentwicklung investieren. In gleicher Weise nimmt die Konkurrenz in den außereuropäischen Märkten durch internationale Bauunternehmen infolge staatlicher Unterstützung, wettbewerbsfähigen Arbeitskosten und einem hohen Qualifikations- und Technologieniveau zu.

Regulatorische und andere Rahmenbedingungen

Regulatorisches Umfeld. Aus dem Vorstehenden geht hervor, dass der Sektor einem zunehmend strengeren regulatorischen Umfeld gegenübersteht. Die Herausforderungen betreffen nicht nur die Definition der Regularien, sondern auch die effektive Umsetzung dieser Regularien auf nationaler Ebene. Zudem mangelt es an einer Harmonisierung der Normen und Zertifizierungen zwischen den Mitgliedsstaaten. Die mangelnde Einhaltung der Regularien seitens der Wettbewerber stellt eine Bedrohung dar, da sie die Verhältnisse für Investoren, Entwickler und Lieferanten von Bauprodukten und -dienstleistungen innerhalb der EU und auf dem Weltmarkt aus dem Gleichgewicht bringen könnte.

Zugang zu Finanzierung. Die Finanzkrise, Zahlungsverzug von Kunden, ein ineffektives Finanzmanagement und eine eingeschränkte Rentabilität in Teilbereichen des Baugewerbes haben die Möglichkeiten der Kapitalbeschaffung des Sektors eingeschränkt. Ebenso hat der erhebliche Wertverlust von Gebäuden in Europa und anderswo einen enormen Einfluss auf die Kapitalbeschaffung und die Gewinnung von Investoren für neue

Bauprojekte. Insbesondere können nur schwer Kapitalgeber für spekulativere Bauprojekte gefunden werden.

Vision für die Zukunft des europäischen Baugewerbes

Angesichts der Herausforderungen für das Baugewerbe, der Strategie Europa 2020 und der Prioritäten könnte die folgende Vision für eine zukünftige Mitteilung bezüglich der nachhaltigen Wettbewerbsfähigkeit des Baugewerbes relevant sein:

Bis zum Jahr 2020 wird ein nachhaltiges und wettbewerbsfähiges europäisches Baugewerbe

- Bauwerke auf der Grundlage der Lebenszyklusleistung (Kosten/Nutzen) und qualitativ hochwertiger Modelle konzipieren, entwickeln, bauen, betreiben und umbauen.
- ein attraktiver Arbeitgeber mit hervorragenden Möglichkeiten zur beruflichen Qualifizierung, Gesundheit und Sicherheit, Bezahlung und Karrieremöglichkeiten sein.
- Bauwerke (Gebäude und Infrastruktur) anbieten, die an die sozialen und wirtschaftlichen Bedürfnisse der Menschen, der Wirtschaft und der Gesellschaften (einschließlich der relevanten speziellen Bedürfnisse in Teilen der Bevölkerung) angepasst sind oder angepasst werden können.
- neue und innovative Lösungen anbieten, die die Anforderungen der weltweit dringendsten Probleme (Klima, Sicherheit usw.) erfüllen:
  - die Europäische Union bei der Erreichung der Ziele in Bezug auf die Energieeffizienz von Gebäuden für das Jahr 2050 unterstützen;
  - das Ziel erreichen oder übertreffen, das 70 % der Abfälle recycelt werden;
  - die Anforderungen an die Qualität des Raumklimas in Gebäuden erfüllen;
- ein attraktiver Partner für Kunden in bestehenden und entstehenden Wachstumsmärkten sein;
- eine hervorragende wirtschaftliche Leistung erbringen.

Ziele

Um diese Vision zu realisieren wurden fünf übergreifende Ziele entwickelt:

- Ziel 1: Stärkung des Marktes durch eine effektivere Regulierung
- Ziel 2: Verbesserung der Qualifikation und Arbeitsorganisation durch Professionalisierung und Partnerschaften zwischen dem privaten und öffentlichen Sektor
- Ziel 3: Verbesserung der Innovationskapazität und -leistung in allen Formen innerhalb des Sektors im Hinblick auf die Steigerung der Produktivität und die Verbesserung der Nachhaltigkeit und Wertschöpfung in allen Teilen der Wertschöpfungskette
- Ziel 4: Verbesserte Nachhaltigkeit bei der Entwicklung, den Produkten, Prozessen und Aktivitäten
- Ziel 5: Stärkung der weltweiten Wettbewerbsposition des Sektors

Empfehlung für politische Maßnahmen

Ziel 1 Stärkung des Marktes durch eine effektivere Regulierung	§ Überwachung und Unterstützung der Umsetzung der Richtlinie für Bauprodukte, der Mindestanforderungen für Gesundheit und Sicherheit, der beruflichen Qualifikation und anderen Regularien (EU, Mitgliedsstaaten) § Klärung von Teilen der Dienstleistungsverordnung, um den Baudienstleistungsunternehmen den Zugang zu den europäischen Märkten zu ermöglichen (EU & Mitgliedsstaaten) § Unterstützung der effektiven Umsetzung der geänderten Zahlungsverzugsrichtlinie (EU, Mitgliedsstaaten), um sicherzustellen, dass alle Unternehmen der Wertschöpfungskette des Baugewerbes innerhalb angemessener Fristen bezahlt werden
Ziel 2 Verbesserung der Qualifikation und Arbeitsorganisation durch Professionalisierung und Partnerschaften zwischen dem privaten und öffentlichen Sektor	§ Aufbau strategischer Partnerschaften zwischen der Industrie, dem Bildungssektor und den Anbietern von Schulungen, um sicherzustellen, dass die nationalen Systeme zur Berufsausbildung und beruflichen Fort- und Weiterbildung im Baugewerbe bezüglich des Inhaltes und der Unterrichtsmethoden ausreichend flexibel sind, die unterschiedlichen Anforderungen des Sektors erfüllen und dass der Bildungssektor und die Anbieter von Schulungen gemeinsam mit dem Sektor über die Kapazität verfügen, die aufkommenden Änderungen, die die mittelfristigen Anforderungen an die Qualifikation beeinflussen könnten, zu ermitteln. Ein Schwerpunkt sollte die Förderung der Entwicklung der Managementkapazität (insbesondere bei den KMU) in Schlüsselbereichen wie dem Personalmanagement, dem Finanz- und Qualitätsmanagement und dem Gesundheits- und Sicherheitsmanagement sein (Mitgliedsstaaten, Fort- und Weiterbildung & Sektor) § Förderung der Entwicklung von Fähigkeiten durch Verbreitung und Austausch guter Praktiken unter nationalen Interessenvertretern (EU) und durch den Abschluss kollektiver Verträge und den Anspruch auf Fort- und Weiterbildung auf lokaler und/oder nationaler sektoraler Ebene § Verbesserung der strategischen Kapazität zur Anwendung von IKT, beispielsweise Baudaten-Managementsysteme, elektronische Fakturierung und ERP-/Buchhaltungssysteme, in Geschäftsprozessen und bei der Entwicklung von Geschäftsmodellen und Produkten durch staatliche oder sektorale Initiativen und Industriepartnerschaften mit Fort- und Weiterbildungsinstituten (Sektor, Mitgliedsstaaten, Vermittler, Fort- und Weiterbildungsinstitute) § Verbesserung der Kapazität und Systeme der Vergabeabteilungen öffentlicher und privater Kunden, um die wirtschaftlich vorteilhaftesten Angebote auszuwählen und in den Bauverträgen die relevanten Nachhaltigkeitsbedingungen zu berücksichtigen, indem einfach anzuwendende Richtlinien für kleine Unternehmen bereitgestellt werden, einschließlich der einfach zugänglichen Onlineberatung und der Entwicklung von Standardwerkzeugen zur Beurteilung von Angeboten und der Aufstellung von Standards für die Rolle der Kunden, Berater und Auftragnehmer (EU, Sektor, Mitgliedsstaaten, Banken, Fort- und Weiterbildungsinstitute) § Mitgliedsstaaten und Branchenverbände sollten die Einführung und

	Unterstützung von Kampagnen erwägen, um das Baugewerbe für Talente attraktiver zu machen (Mitgliedsstaaten & Sektor)
Ziel 3 Verbesserung der Innovationskapazität und -leistung in allen Formen innerhalb des Sektors im Hinblick auf die Steigerung der Produktivität und die Verbesserung der Nachhaltigkeit und Wertschöpfung in allen Teilen der Wertschöpfungskette.	§ Aufnahme zukünftiger Anforderungen, die die großen Herausforderungen stellen, in nationale und europäische Forschungsprogramme, um die Entwicklung neuer, nachhaltiger kundenspezifischer Materialien (Hersteller) und Designs (professionelle Baudienstleistungen) zu fördern (EU, Mitgliedsstaaten) § Förderung der öffentlichen und privaten Nachfrage nach einer hervorragenden Lebenszyklusleistung von Bauwerken – geringere Instandhaltungskosten/Lebenszykluskosten und die Entwicklung innovativer Geschäftsmodelle und Lösungen durch finanzielle Anreize, vertragliche Vereinbarungen (DBFOM, PFI usw.) und Regularien (EU, Mitgliedsstaaten) § Verbesserung der Industriebeteiligung an Forschungs- und Entwicklungsprogrammen und Aufnahme von Forschungsergebnissen durch die Demonstration neuer Produkte und Verfahren (einschließlich „lebendes Labor“), die Beantwortung von Versicherungsfragen rund um Prototypen, die Bereitstellung finanzieller Anreize und die Gewährleistung einer stärkeren Orientierung von Forschungs- und Entwicklungsprogrammen an den Bedürfnissen der Industrie und der industriellen Entwicklung von Technologien (EU, Mitgliedsstaaten, Sektor)
Ziel 4 Verbesserte Nachhaltigkeit bei der Entwicklung, den Produkten, Prozessen und Aktivitäten	§ Stärkung ökologischer und nachhaltiger Initiativen zur öffentlichen Auftragsvergabe, um eine breitere Anwendung der umfassenden Richtlinien auf mitgliedsstaatlicher Ebene unter Berücksichtigung der Bedeutung der Qualität bei der öffentlichen Auftragsvergabe zu ermöglichen (EU, Mitgliedsstaaten) § Anwendung von Standards, Umweltkennzeichen und Regularien (EU-Gebäuderichtlinie), um die Innovation bei der Umsetzung nachhaltiger Lösungen in Bezug auf Gesellschaft, Gesundheit, Sicherheit, Wirtschaft und Umwelt zu fördern (EU, Mitgliedsstaaten) § Innovationen seitens des Marktes und der Arbeitnehmer in Bezug auf die Funktionalität von Design, Produkten und Dienstleistungen durch Kapazitätsaufbau, Vorführungen und die Verbreitung guter Praktiken, Unterstützung/Zertifizierung von KMU und Partnerschaften mit Fort- und Weiterbildungsinstituten zu fördern (Mitgliedsstaaten, Fort- und Weiterbildungsinstitute, Vermittler, Sektor) § Angebot und Förderung (einschließlich des Europäischen Regionalentwicklungsfonds, ERDF) attraktiver Finanzierungs- und anderer Initiativen für Eigentümer aus dem privaten und öffentlichen Sektor, um einen nachhaltigen Umbau (oder Abriss) mit positiven Auswirkungen auf den sozialen Zusammenhalt, das Raumklima, die Umwelt (beispielsweise Abfallproduktion pro m^2), CO_2-Emissionen und den Anteil erneuerbarer Energien zu initiieren § Überwachung der Auswirkungen neuer Methoden, Materialien und Lösungen auf die Gesundheit und Sicherheit von Prozessen, die CO_2-Emissionen und das Raumklima, den Abfall (Wiederverwendung, Recycling) pro m^2 eines Bauwerkes, den Anteil erneuerbarer Energien (auch unter Berücksichtigung betriebener Bauwerke im Laufe der Zeit).

	Regularien und Konzepte gegebenenfalls anpassen, um neue Bedingungen zu schaffen und Leistungen zu erzielen. Diesbezüglich sollten neue Leistungsindikatoren entwickelt werden, um einen ganzheitlicheren Weg zur Messung der Leistung des Sektors zur Verfügung zu stellen.
Ziel 5 Stärkung der weltweiten Wettbewerbsposition des Sektors durch Herstellung des Gleichgewichts	§ Überprüfung der Praktiken der europäischen öffentlichen Auftraggeber in Bezug auf den Zugang von nichteuropäischen Unternehmen zu europäischen Verträgen mit Konzentration auf die Durchsetzung von europäischen Regeln und Richtlinien in Bezug auf die Korruptionsbekämpfung, Finanzierung durch die EU, soziale und Umweltanforderungen und die Umrahmung ungewöhnlich günstiger Angebote. Es wird erforderlich sein, eine strengere und effektivere Durchsetzung der europäischen Gesetze und Regularien einzuführen. § Überprüfung der Anwendung der Regularien für Staatshilfen, um etwaige wettbewerbsverzerrende Wirkungen zu ermitteln, auch zwischen öffentlichen und privaten Immobilieninvestoren/Entwicklern. Gegebenenfalls Einführung einer effektiveren Durchsetzung von Regularien. § Förderung von Networking- und Partnerschaftsarrangements sowie die Entwicklung einer langfristigen Vision und Strategie für das europäische Baugewerbe, die den Sektor in einem globalen Kontext auf der Grundlage von Kriterien wie hohe Qualität, ökologisch und nachhaltig, kosteneffizientes Vertragsverhalten in Schwellenmärkten kennzeichnen (EU, Mitgliedsstaaten, Sektor)

Governance und Umsetzungsplan

Die Umsetzung der Wettbewerbsagenda für das europäische Baugewerbe erfordert eine Governance-Struktur, die das horizontale und vertikale Management und die horizontale und vertikale Koordination und Überwachung kombiniert.

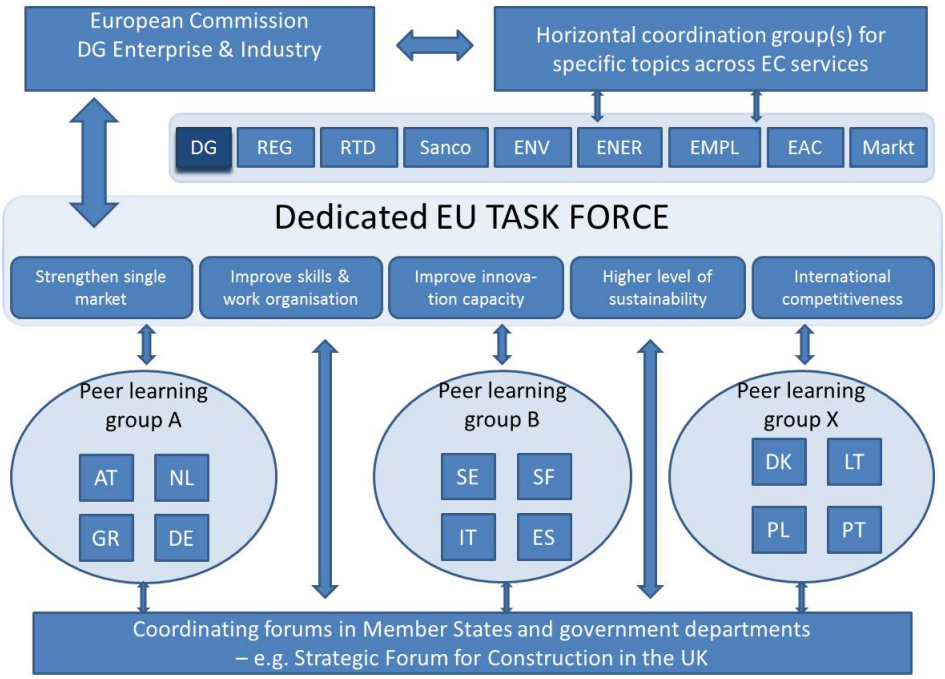
Dies könnte ermöglicht werden durch:

- eine entsprechende Task Force, die die das Baugewerbe betreffenden europäischen politischen Initiativen koordiniert und überwacht;
- eine horizontale Referatskoordinationsgruppe, die Synergien ermittelt und Auswirkungen und Effekte der verschiedenen Referatsinitiativen überwacht, die auf das Baugewerbe ausgerichtet sind und dieses beeinflussen;
- Schaffung von gemeinsamen Lerninitiativen und Clusternetzwerken der Mitgliedsstaaten, die sich gemeinsam auf spezifische Prioritäten oder Probleme innerhalb der Strategie konzentrieren - diese sollten auf bestehenden Netzwerken und europäischen Projekten basieren.

Die Governance-Struktur ist Mittel zum Zweck, denn sie erlaubt sowohl eine strategische Ausrichtung auf europäischer Ebene als auch eine Bottom up-Initiative der Mitgliedsstaaten, des Sektors und der Untersektoren. Es besteht der Bedarf einer engeren Zusammenarbeit zwischen den Untersektoren und quer durch die Wertschöpfungskette des Baugewerbes, um den großen weltweiten Herausforderungen die Stirn zu bieten. Deshalb empfehlen wir eine einzige Task Force und nicht eine für jeden Untersektor. Die Untersektoren und Industrie können zusätzliche Gruppen einrichten, die der Task Force

zuarbeiten, aber alle strategischen Aktivitäten müssen die Auswirkungen auf die gesamte Wertschöpfungskette berücksichtigen und sollten auf den bestehenden Strukturen und Netzwerken basieren.

Abbildung 0.1 Vorschlag für eine Governance-Struktur



Europäische Kommission Horizontale Koordinationsgruppe(n) für spezifische GD Unternehmen & Industrie			Horizontale Koordinationsgruppe(n) für spezifische Themen zwischen den EK-Referaten	
DG - REG - RDT - Sanco - ENV - ENER - EMPL - EAC - Markt				
Zweckorientierte EU TASK FORCE				
Stärkung des einzelnen Marktes	Qualifikation & Arbeitsorganisation verbessern	Innovationskapazität verbessern	Höheres Nachhaltigkeitsniveau	Internationale Wettbewerbsfähigkeit
Gemeinsame Lerngruppe A AT - NL GR - DE	Gemeinsame Lerngruppe B SE - SF IT - ES		Gemeinsame Lerngruppe X DK - LT PL - PT	
Koordinationsforen in den Mitgliedsstaaten und Ministerien – beispielsweise Strategieforum für das Baugewerbe im VK				

Die Einrichtung einer zweckbestimmten Task Force

Die Aufgabe der Task Force wird darin bestehen, die Umsetzung der Initiativen - auch auf mitgliedsstaatlicher und Sektorebene - zu initiieren, zu koordinieren und zu überwachen. Die Task Force wird sich aus Vertretern aus den Mitgliedsstaaten (ermittelt, ausgewählt und ernannt von Ministern und/oder anderen relevanten öffentlichen Organisationen), Branchenverbänden und relevanten wissenschaftlichen Sachverständigen zusammensetzen. Die wichtigen Branchenverbände sollten die verschiedenen Untersektoren repräsentieren, einschließlich Architekten, Ingenieure, Bauunternehmen, Lieferanten von Bauprodukten und Immobilienentwickler. KMU und Arbeitnehmerorganisationen sollten ebenfalls auf höchster Ebene vertreten sein. Die Mitglieder der Task Force sollten auf der Grundlage relevanter Kompetenzen, Erfahrungen, Netzwerkkontakte und Führungsqualitäten ernannt werden.

Die Task Force sollte zwei Mal pro Jahr zusammenkommen, um die Fortschritte zu überwachen und zu besprechen und Anpassungen im Umsetzungsplan oder völlig neue politische Maßnahmen oder Initiativen vorzuschlagen. Deshalb sollte sie damit beauftragt werden:

- die Fortschritte der nachhaltigen Wettbewerbsagenda für das Baugewerbe zu überwachen;
- neue Initiativen oder Anpassungen bestehender Initiativen vorzuschlagen, um die nachhaltige Wettbewerbsfähigkeit des Baugewerbes zu verbessern;
- Evaluierungen der Programme und Initiativen oder die Messung von Indikatoren zu beantragen, um die Leistung und die Auswirkungen der Agenda und der Initiativen zu beurteilen;
- den Kontakt zu gemeinsamen Bildungsnetzwerken, bestehenden groß angelegten Initiativen und relevanten Initiativen der Mitgliedsstaaten herzustellen und nachzuverfolgen;
- Möglichkeiten zur Stärkung der Koordination zwischen den verschiedenen Referaten in direkter Zusammenarbeit mit der Koordinationsgruppe zwischen den Generaldirektionen vorzuschlagen.

Wir empfehlen, dass die Europäische Kommission ein Sekretariat für die Task Force sowie ausreichende Ressourcen zur Verfügung stellt, um ein solches Sekretariat und dessen Aktivitäten zu betreiben. Das Sekretariat wird für die Zusammenstellung von Diskussionsunterlagen und Hintergrundinformationen verantwortlich sein, um die Entscheidungsfindung zu unterstützen. Das Sekretariat wird von einer Ad-hoc-Expertengruppe unterstützt, die vertraglich verpflichtet werden kann, die relevanten Beiträge zu liefern. Es ist wichtig, dass diese Gruppe über einen Kern aus Experten verfügt, um die Fortführung und Wissensteilung sicherzustellen.

Strategischer Rahmen – Ziele, politische Maßnahmen und Indikatoren
Die Task Force wird ihre Arbeit mit einer vereinbarten und genehmigten Mitteilung der Europäischen Kommission beginnen, in der die wichtigsten Ziele sowie die operativen Zielsetzungen und Aktionen beschrieben sind. Für die einzelnen operativen Zielsetzungen wird der Umsetzungsplan politische Maßnahmen und Indikatoren beschreiben, um den Fortschritt der Strategie zu überwachen. Dieser strategische Rahmen wird die Arbeit der

Task Force und ihre Interaktion mit der Europäischen Kommission, der Industrie und den Mitgliedsstaaten lenken. Dieser Rahmen wird dynamisch sein und jährlich von der Task Force in Zusammenarbeit mit den betreffenden Interessenvertretern beurteilt und angepasst werden. Die Europäische Kommission, die einzelnen Mitgliedsstaaten, die Sektororganisationen und die gemeinsamen Lerngruppen können begründete Änderungen am strategischen Rahmen auf der Grundlage von Änderungen in den Rahmenbedingungen vorschlagen.

Koordination politischer Initiativen zwischen den Referaten der Europäischen Kommission

Eine GD-Koordinationsgruppe sollte eingerichtet werden, um Themen anzusprechen, die mehrere Referate der Europäischen Kommission sowie die allgemeine politische Koordination innerhalb der Europäischen Kommission sowie Initiativen betreffen, die sich auf die nachhaltige Wettbewerbsfähigkeit des europäischen Baugewerbes beziehen. Diese Gruppe soll mögliche Synergien, Überschneidungen, Ineffizienzen und andere Koordinationsprobleme im Zusammenhang mit den wesentlichen Beiträgen des Baugewerbes zur Strategie *Europa 2020* und anderen relevanten europäischen Zielen ansprechen.

Neben einem festen Kern aus Teilnehmern sollten die Generaldirektionen abhängig vom jeweiligen Thema intern koordinieren, wer die Treffen der Gruppe leiten und daran teilnehmen wird. Die Gruppe wird über ein Sekretariat verfügen, das von einem Mitglied der Kerngruppe aus der GD Unternehmen & Industrie geleitet wird. Dieses Sekretariat gewährleistet, dass Versammlungen und Tagesordnungen organisiert, Versammlungsprotokolle aufgesetzt und Aktionen unternommen werden. Vor den Treffen der Task Force wird das Sekretariat über die Ergebnisse dieser Koordinierungsaktivitäten berichten. Die Koordinationsgruppe sollte drei bis vier Mal pro Jahr zusammenkommen. Das Vertragsunternehmen schlägt vor, dass die Gruppe bespricht, wie die Koordination und Kooperation zwischen Referaten zu verbesserten Beiträgen des Baugewerbes zur Innovation, zur Schaffung von Arbeitsplätzen, zum sozialen Zusammenhalt, zur Energieeffizienz, zur Erreichung der Umweltziele und zum internationalen Wachstum führen kann.

Gemeinsames Lernen und Wissensteilung

Obwohl viele Ziele der Europäischen Union sich in den nationalen Strategien der Mitgliedsstaaten widerspiegeln, bestehen Unterschiede im Fokus, der Priorität, dem Stadium und dem Entwicklungsniveau zwischen den einzelnen Ländern und Untersektoren. Deshalb ist es wahrscheinlich, dass die Mitgliedsstaaten an einer aktiven Kooperation mit anderen Mitgliedsstaaten interessiert sind, wobei sie die Möglichkeit haben, von den Erfahrungen in diesen Ländern zu lernen und umgekehrt. Die Einrichtung von gemeinsamen Lerngruppen sollte von der Task Force aktiv gefördert werden und auf bestehenden Gruppen und Netzwerken (URBACT, Gremien zum ökologischen Bauen, INTERACT, Netzwerke nationaler Konstruktionstechnikplattformen usw.) basieren.

Die gemeinsamen Lerngruppen müssen von einem kompetenten Koordinator unterstützt werden, der Treffen/Besuche organisiert und die Task Force über die Ergebnisse

unterrichtet. Die gemeinsamen Lerngruppen sollten (mit Unterstützung der Europäischen Kommission) die folgenden Aktivitäten ausführen:

- gemeinsames Lernen auf der Grundlage von Referenzdaten, Präsentationen und Diskussionen von Ansätzen zur Regulierung, zur Unterstützung von Initiativen und anderen Instrumenten (beispielsweise Benchmarking von PPP-Ergebnissen oder Abfallmanagement im Baugewerbe).
- Wissensteilung in Bezug auf Auswirkungen von Initiativen und Regulierungen (beispielsweise in Bezug auf die Finanzierung von Aus-, Fort- und Weiterbildung, die Aufnahme bestehender Technologien und die Ergebnisse aus Forschung und Entwicklung).
- Kooperation, um die Möglichkeiten für Synergien auszuloten (beispielsweise innerhalb von Forschungsaktivitäten, Untersuchung und Prüfung von Zertifizierungssystemen und Standards)
- Kooperation zur Verbesserung des grenzüberschreitenden Handels und der grenzüberschreitenden Mobilität (beispielsweise in Bezug auf Bauprodukte, die Anerkennung von Qualifikationen und die Mobilität der Arbeitnehmer)

Konsultationsmechanismen

Beratungen bezüglich möglicher neuer Initiativen und Auswirkungen bestehender Initiativen sollten von der Task Force sowie der horizontalen Koordinationsgruppe auf der Ebene der Europäischen Kommission stattfinden, um sicherzustellen, dass Politik und Initiativen die Bedürfnisse auf europäischer und mitgliedsstaatlicher Ebene befriedigen und Mängel beseitigen.

Diese Beratungen werden ein wichtiges Mittel zur Minimierung negativer Auswirkungen auf die nachhaltige Wettbewerbsfähigkeit im Baugewerbe sowie zur Ermittlung notwendiger Verbesserungen und Anpassungen von Regularien und Initiativen sein. Ebenso werden die Beratungen zur Ermittlung von guten Praktiken bei der Lösung wichtiger Probleme beitragen.

Konsultationsmechanismen sind eine offensichtliche Möglichkeit für gemeinsame Lerngruppen und Mitgliedsstaaten, Probleme in Bezug auf die horizontalen und vertikalen Rahmenbedingungen anzusprechen, aber auch um herauszufinden, was zu funktionieren scheint und welche anderen Faktoren einen negativen Einfluss auf die nachhaltige Wettbewerbsfähigkeit des Baugewerbes zu haben scheinen. Beispielsweise welche Maßnahmen in Bezug auf die Finanzkrise funktioniert haben und welche beim Anpacken des erheblichen Rückgangs der Bauaktivitäten infolge der Finanzkrise nicht funktioniert haben.

Umsetzungsmaßnahmen

Die Umsetzungsmaßnahmen könnten bestehen aus:

- Maßnahmen zum Kapazitätsaufbau - Unterstützung der Mitgliedsstaaten bei der Umsetzung der Strategie und der Einrichtung eines Koordinationsforums, um das Engagement und den Kapazitätsaufbau bei den verschiedenen Akteuren zu gewährleisten
- Fahrpläne zur Umsetzung der verschiedenen Bestandteile der Strategie unter Berücksichtigung des Entwicklungsstadiums in den verschiedenen Mitgliedsstaaten und Branchenverbänden

- Sammlung und Verbreitung guter Praktiken in Bezug auf unterschiedliche Elemente der Strategie durch Mitgliedsstaaten, Branchenverbände und/oder gemeinsame Lerngruppen. Gute Praktiken könnten sich auf die Überwachung der Einhaltung der europäischen Gesetzgebung und Regulierungen und die Aufnahme bestehender Basistechnologien im Baugewerbe beziehen.
- einer jährlichen Prüfung, in der Indikatordaten für jede einzelne Zielsetzung gesammelt und über die in den Mitgliedsstaaten erzielten Ergebnisse berichtet wird. Die Analyse der erzielten Fortschritte sowie die Schwerpunkte für den kommenden Zeitraum werden in einem jährlichen Prüfbericht präsentiert.
- eine jährliche Konferenz, in der die Ergebnisse aus dem jährlichen Prüfbericht, die guten Praktiken und die Ergebnisse aus dem gemeinsamen Lernen in verschiedenen, parallel verlaufenden Strängen besprochen werden, um auch die Arbeiten der Task Force für das darauffolgende Jahr festzulegen.

Erfolgsfaktoren

Der Erfolg der Strategie, der Governance-Struktur und der Umsetzung basiert auf freiwilligen Aktivitäten der Interessenvertreter neben einer Ad-hoc-Expertengruppe. Deshalb ist es wichtig:

- dass die vorgeschlagene Task Force als eine rechtmäßige Einrichtung zur Durchführung einer kritischen Beurteilung der Leistung des Sektors, der Untersektoren und der Mitgliedsstaaten betrachtet wird. Diese Legitimierung sollte auf höchster Ebene von der Europäischen Kommission, den europäischen Branchenverbänden und den betreffenden nationalen Koordinierungsstellen für das Baugewerbe sichergestellt werden.
- dass die notwendigen Mittel und Ressourcen zur Unterstützung der Umsetzung und Überwachung der Strategie zugeteilt werden.
- dass die Übernahme und das Engagement auf mitgliedsstaatlicher Ebene sichergestellt wird, indem eine maßgebliche Übereinstimmung mit der nationalen Agenda für das Baugewerbe gewährleistet wird.
- dass der Transfer und die Umsetzung der Lernansätze und guten Praktiken aus den Berichten und gemeinsamen Lernaktivitäten in tatsächliches Verhalten beim Bau und der Betreibung von Bauwerken ermöglicht wird.

Überwachungsrahmen

Für jede politische Intervention sollte eine begrenzte Zahl robuster Indikatoren definiert werden - wo diese im Voraus nicht vorhanden sind, sollten sie mit den relevanten politischen Zielen verknüpft werden (siehe Anhang I für eine Liste der relevanten Indikatoren). Diese Indikatoren werden zur Überwachung der Ergebnisse und Fortschritte in Bezug auf die politischen Ziele genutzt.

1. Introduction

The European Commission will submit a Communication for the sustainable competitiveness of the construction sector and its enterprises in the autumn of 2011. As an input to this Communication, the European Commission DG ENTR, Unit G5 "Construction, Pressure Equipment and Metrology", launched this study at the beginning of 2010 to look into the background, needs and feasibility of developing a new competitive agenda for the EU construction sector. The outcome of the study, its findings and proposed contributions to the above-mentioned Communication, is reported here.

1.1 Context and background

The background to this study is the 1997 Competitiveness Agenda, which was presented on 4 November 1997 in the Commission Communication COM (97) 539 "The Competitiveness of the Construction Industry". Honing the recommendations of the "Document of the Services of the Commission Concerning the Results and Follow-up of the Strategic Study of Construction" from the year before[4] (to realise the objectives of the 1993 SECTEUR report), the Communication identified 65 specific actions in relation to four overarching strategic objectives, namely:

1. To improve the quality in construction (by developing quality procedures and standards taking into account environmental, regulatory, employment and entrepreneurial considerations);
2. To improve the regulatory environment (by adapting in particular rules and procedures for public procurement, unfair competition, registration and qualification systems, health and safety and payment delays);
3. To improve education and training provisions (by upgrading the education levels and pathways offered, the qualifications of the workforce and the image of the sector); and
4. To reorient and reinforce research and development (by targeting actual needs and encouraging private investments in RTDI as well as collaboration and dissemination of results).

The Agenda presented an ambitious plan for the improvement of the construction sector with an extensive list of priority actions targeting multiple problem areas. The implementation of the action plan relied primarily on voluntary contributions from sector organisations through the 13 working groups. However, the extent of facilitation, follow-up and coordination of work was limited in terms of turning the recommendation into concrete action at sector and business level. These dimensions of the future strategy and

[4] According to, for instance, the WG ALT Final report from May 1999 (p.8), but in reality may refer to "Strategies for the European Construction Sector – A Programme for Change" from 1994 (Atkins report for the Commission)

implementation plan for the construction sector are expected to be addressed more thoroughly on the basis of the findings and recommendations in this report.

Nowadays, the *Europe 2020 Strategy* sets the overarching framework for a future strategy for construction focusing on the following three priorities:

1. **Smart growth**: developing an economy based on knowledge and innovation;
2. **Sustainable growth**: promoting a more efficient, greener and more competitive economy;
3. **Inclusive growth**: fostering a high-employment economy delivering social and territorial cohesion.

Clearly, the construction sector is of strategic importance to the EU as it delivers the buildings and infrastructure needed by the rest of the economy and society. It is the largest single economic activity and it is the biggest industrial employer in Europe. The sector, as defined in this study, employs directly almost 20 million people, but according to FIEC, it affects indirectly and directly some 44 million workers. It represents more than 10% of the EU's GDP and more than 50% of fixed capital formation. Public infrastructure investments represent between 0.5 and 2% of GDP in European countries. 40-45% of Europe's energy consumption stems from buildings with a further 5-10% being used in processing and transport of construction materials. Long-term infrastructure will have to adapt to future climate risks. Future competitiveness strategies for the construction sector could be the key to environmental and social challenges in the EU and also more globally, provided that the right strategic choices are made in the short to medium term. If this is the case, the European construction sector could also become a player in third countries, where massive investments are still to be made, especially so in emerging and fast moving economies.

1.2 Objectives

The overall aim of the study is to identify key objectives and to draft actions intended to constitute the basic input enabling the Commission to define a mid-term strategy (until 2020) to strengthen the sustainable competitiveness of the EU construction sector. The study will enable the Commission in collaboration with key stakeholders to arrive at an operational Competitiveness Agenda for the EU construction sector.

Specifically, the study:

- Assesses the competitive position of the EU construction sector;
- Derives learning points from the implementation of the1997 Competitiveness Agenda;
- Identifies and analyses key factors influencing the current and future competitiveness of the EU construction sector;
- Examines and assesses the regulatory and other framework conditions at European and national level to identify key challenges that the mid-term strategy needs to address; and
- Presents a draft strategy, actions and implementation plan.

1.3 Purpose of this report

The purpose of this final study report is to present the results of the study and all information for internal evaluation purposes. The Commission may wish to disseminate part or all of the report. More specifically the final study report must cover the following (according to Terms of Reference):

- *A description of the methodology used*, including details on the references and information that are utilised and their sources, measures taken to ensure quality of the work, and consultations made;
- *A specification of how the work was undertaken* in respect of the agreed work programme. Sections 1.6 and 1.7 below describe how the work was conducted and what was achieved;
- *The characteristics of the work undertaken* (ideas, innovative elements, technical feasibility and likelihood of findings resulting in successful further work, positive and negative aspects experienced);
- The collaboration established during the course of the work (involvement of all stakeholders);
- *A comprehensive presentation of the results of the work* as well as an explanation of the work undertaken. The results achieved are covered in Chapters 2-6 covering data on the structure of the sector, the competitiveness analysis and the analysis of the framework and regulatory framework.

The report then proposes a European strategy for improving the sustainable competitiveness of the construction sector. In doing so, it outlines a governance structure for the implementation of the strategy and a set of prioritised objectives. The report contains proposals for policy measures which may strengthen existing initiatives. In addition, it proposes a number of indicators and an implementation and monitoring plan to ensure that goals are achieved.

1.4 Readers of this report

The successful implementation of this strategy requires cooperation with a broad range of stakeholders, who are therefore among the expected readers of this report. They include:

- EC DG Enterprise and Industry (hence DG ENTR), as the client of the study and the author of the Communication for the sustainable competitiveness of the construction sector to be published in 2011. The aim of this study is to draft the elements that will constitute the main content of this Communication;
- Other DGs within the EC – with an interest in and influence on the sustainable competitiveness of the construction sector, and with a key role in defining the EU policy and legislative conditions of the construction sector other than those covered by DG ENTR;
- European Sector Organisations – covering subsectors of the construction sector and the Real estate services sector that will be instrumental in disseminating the strategy to their national members and supporting the implementation of the strategy as part of the proposed Task Force;
- Large-scale relevant European projects and initiatives that already contribute to the improvement of the sustainable competitiveness of the construction sector, including energy efficient building partnerships, lead market initiatives within construction, the European Construction Technology Programme, smart cities, etc.

- Member States, relevant ministries, public bodies and other stakeholders that will be instrumental in creating an enabling environment for the implementation of the strategy at national and regional level and in encouraging and facilitating active participation in peer learning groups and knowledge sharing activities with industry and government organisations from other EU countries;
- National sector organisations and relevant R&D units that are supported by European sector organisations, national and regional authorities that will implement the strategy and participate actively in cooperation with similar organisations in other countries.

1.5 Definitions

Sustainable competitiveness reflects the ability to achieve and maintain the (economic) competitiveness of an industry in accordance with sustainable development objectives. In this regard it is concerned both with the contribution made by the construction sector to economic growth, social cohesion and employment and with those capabilities within the sector (or the enterprises therein) that enable it to compete in markets that are open to international competition. At the same time, the sector's economic performance needs to be set against its performance in terms of conducting processes and using resources in an efficient and sustainable way while minimising negative environmental impacts (i.e. enhancing environmental welfare).

Definition of the construction sector: Use is made of the NACE Rev.1.1 classification of economic activities and the overall construction sector includes the following subsectors:

- Manufacturing of construction materials: Suppliers of construction products and components (including wholesale);
- Onsite construction: Site preparation, construction of complete buildings, building installation, completion, and rental of construction machinery;
- Professional construction services (incl. architects, engineering services, cost controllers and building control bodies); and finally
- The study examines the importance and relevance of the Real estate services sector as a key client base of the sector.

For further details of the sector definition see Section 2.1.

1.6 Approach and methodologies applied in the study

The study has deployed a range of methodologies in the study approach. The core of this approach is the *competitiveness analytical framework* presented in more detail in Chapter 3. The analytical framework includes four overarching assessments of the sustainable competitiveness of the sector:

- Assessment of inputs, structure and processes in the sector (analysed primarily in Chapters 2 and 3);
- Assessment of external factors such as market demand and supply and other exogenous factors (analysed primarily in Chapters 3 and 4 but also in Chapter 2);
- Assessment of competitive benchmarks in relation to business models and strategies (analysed in Chapters 2, 3 and 4);
- Assessment of regulatory and other framework conditions (analysed in Chapters 4, 5 and 6).

In the literature and Member States review (task 1) a *matrix of possible sector challenges* was used to organise literature and Member States responses in terms of the most important challenges.

Data collection has been conducted at national, European and international level. Different data sources have been used, including data from Eurostat, OECD, Euroconstruct, Amadeus, national statistical offices, various surveys, impact assessments and studies. For more details, see Chapter 2.

Semi-structured interviews were used for interviews with national and international stakeholders, and based on guidelines (tasks 1, 3, 4 and 5), to uncover important factors related to the competitiveness of the construction sector. Many of the interviews have resulted in case studies of regulatory or competitiveness boosting initiatives. Interviews were conducted with:

- Member State sector and government representatives;
- Company, sector and subsector representatives concerning developments in competitiveness of construction sector and subsectors;
- Representatives of important regulatory initiatives;
- Representatives of initiatives aimed at improving the competitiveness of the construction sector; and
- Persons involved in the 1997 Competitiveness Agenda implementation.

See Annex I for 16 case studies and Annex II for a full interviewee list.

The draft strategy and implementation plan has been developed using the following methodologies:

- Challenge/objectives tree for the sector;
- Policy development framework covering impact, timing, relevance, risks, resources and indicators;
- Policy development workshop discussing the above inputs; and
- Assessment of strategy in relation to future scenarios and up against ideal scenario.

The study has been divided in to five main *study tasks* as illustrated in the table below.

Table 1.1: Study tasks

Tasks	Description
Task 1 Literature and contacts review	The main activities in task 1 have been national literature reviews, statistics and contact identification, which have resulted in national review reports (Annex I to the Progress Report); European literature review and contact identification and International literature review. This literature review has been ongoing to pick up on literature that has been published in both the first and second half of the 1-year long study. The results have been incorporated in the analysis in Chapters 2, 3, 4, 5 and 6 as well as the Member State reports provided in the progress report.
Task 2 Data collection and analysis	The data collection has been divided into four parts, i.e. collection of national data; collection of European data; collection of global data and collection of company data from annual accounts and business databases. Initially further work was conducted on the statistical classification of the sector and subsectors

Tasks	Description
	and data on the Real estate services sector was added to final report. Moreover, further data collection was conducted towards the end of the study to upgrade the data on the sector.
Task 3 Competitiveness analysis	The competitiveness analysis has been conducted separately for the three main subsectors based on the analytical framework: Professional construction services (including cost controllers and building control bodies); Manufacturing of construction materials; Onsite construction activities. Some analysis has also been carried out on the role and importance of the Real estate services sector on the competitiveness of the construction sector.
Task 4 Framework and regulatory environment	Based on the literature identified and the results of the national reviews, key framework and regulatory environment dimensions have been defined and analysed. The work also involved an analysis of the '1997 Competitiveness Agenda implementation. This analysis has been further developed since the Progress Report and discussions with the monitoring group to include further important framework conditions.
Task 5 Strategic outlook	Task 5 has included the following tasks: • defining and analysing the key challenges to be addressed by the construction sector; • analysing the key learning points from the implementation of the 1997 competitiveness agenda incorporating this learning into the implementation plan for this strategy; • defining objectives to improve the sustainable competitiveness of the construction sector and proposing possible policy measures to meet these objectives and indicators to measure progress. These policy measures are assessed up against existing policy measures Define a governance structure and implementation plan that will facilitate the fulfilment of the strategy goals.

1.7 Remaining chapters

This study report is divided into the following chapters:

Chapter 2 defines the construction sector and subsectors and *describes key structural data and performance of the construction sector* and subsectors including market segments, employment, production, value added and productivity. In addition, the chapter looks into the overall development and current situation of the construction sector in terms of consolidation, production, capacity, consumption, prices, and employment.

Chapter 3 contains an *analysis and assessment of the competitive position of the EU construction sector*. Several indicators for competitiveness are considered including business conditions, various input indicators, which can be assumed to affect the competitive performance of the construction sector, as well as process, output and

performance indicators. Moreover, the chapter analyses important demand factors and market prospects for construction products.

Chapter 4 considers relevant *regulatory and framework conditions* for the competitiveness of the construction sector, focusing on the regulatory conditions affecting the sector, i.e. environmental regulations, industry specific standards, competition policy and labour market and health and safety regulations. The chapter assesses other important framework conditions such as insurance and liability conditions, access to finance, skills and competence levels, cost of energy and raw materials, etc. Also exogenous conditions like global competition, sustainability and technological developments are assessed.

Chapter 5 examines the implementation of the 1997 Competitiveness Agenda in order to extract the key learning points in relation to the implementation of the future sustainable competitiveness strategy and action plan for the construction sector.

Chapter 6 contains a *strategic outlook for the EU construction sector*. It presents the key challenges faced by the sector. A future vision for the sustainable competitiveness of the construction sector is presented. Five overarching objectives and several possible policy measures are defined. The existing EU policy landscape is presented and the policy measures are presented in detail, including subsector relevance, intervention logic, risks and possible indicators to measure future progress. A governance structure and implementation plan is proposed. The strategy and implementation plan is assessed up against four possible future scenarios.

2. Key aspects of the sector

2.1 Methodology

2.1.1 Definitions of the sector and its sub-sectors

In this study, we apply a broader definition of the construction sector than the narrow common focus only on onsite construction, including also the manufacturing of construction materials and professional construction services within the construction sector. Table 2.1 explains the economic activities used in the analytical part of the study. In the remainder of the report, the term 'overall construction' is used to describe the totality of subsectors indicated in this table except for Real estate services .

Table 2.1: Overview of subsectors used in the analysis

Subsector	Official name (NACE Rev.1.1 in parenthesis)
Onsite construction (Construction within NACE section F in accordance with standard usage)	• Site preparation (F45.1) • Building of complete structures or parts thereof; civil engineering (F45.2) • Building installation (F45.3) • Building completion (F45.4) • Renting of construction or demolishing equipment with operator (F45.5)
Manufacturing of construction materials	• Manufacture of builders' carpentry and joinery (DD20.3) • Manufacture of bricks, tiles and construction products, in baked clay (DI26.4) • Manufacture of cement, lime and plaster (DI26.5) • Manufacture of articles of concrete, plaster or cement (DI26.6) • Cutting, shaping and finishing of ornamental and building stone (DI26.7) • Manufacture of structural metal products (DJ28.1)
Professional construction services	• Architectural and engineering activities (K74.2)

Subsector	Official name (NACE Rev.1.1 in parenthesis)
Real estate services[5]	• Real estate activities with own property (K70.1) • Letting of own property (K70.2) • Real estate activities on a fee or contract basis (K70.3)

2.1.2 Methodological issues concerning data availability

Due to concerns of confidentiality and the changes in the use of the NACE Rev.2 classification scheme for statistical reporting, the latest general published data available at a detailed level is for the year 2007 except for Eurostat's Short-term Business Statistics (STS) that are reported continuously on a monthly or quarterly basis. In light of the current economic crisis, this lack of recent data presents a challenge to establishing a proper overview of the state of the construction sector and all its activities. Extrapolation and estimation as well as reliance on sector sources have been used at various points throughout this chapter to try to accommodate for the data gap in cases where Eurostat's published data have proved insufficient[6].

In general, there is almost no data available for Malta, even for 2007. Therefore, Malta almost never shows up in graphs and figures. Moreover, aggregate figures for the EU12 or the EU27 do not always consider Malta.

In practice, it is almost impossible to separate Architectural and engineering activities (K74.2) from Technical testing and analysis (K74.3) although the latter has no link with construction. Technical testing and analysis is of relatively minor size, however, comprising only about 5% of total turnover within the combined NACE grouping for the countries where separate data is available.

Manufacturing of construction materials poses particular problems because of the subsector's composite nature that cuts across the standard structure of the NACE classification scheme of economic activities. This makes it difficult to obtain data that pertain to the subsector and not to any other sector of the economy or only marginally so. First, data are rarely collected and/or reported consistently across countries and time at the detailed (disaggregated) levels necessary to distinguish construction end uses from other end uses of the broader manufactured product categories. Second, even at the most detailed levels of the classification scheme, the materials and equipment utilised in construction are not always unique to construction, but have multiple purposes (bolts and welders are examples of such generic products). Thus, there exists a trade-off between the comprehensiveness of the definition of the subsector and the validity and completeness of the data available to describe it. The definition applied in the present study errs on the side of the latter concerns rather than the former. However, this definition likely entails

[5] Real estate services for present purposes is considered an auxiliary sector to the construction sector and thus real estate figures generally are not included in total figures for the overall construction sector in this chapter.

[6] For an overview and assessment of the correspondence between NACE Rev1.1 and NACE Rev.2 as the classification schemes relate to the construction sector, see Annex III

an underestimation of the actual size of the manufacturing subsector if all relevant economic activities could be perfectly isolated and extracted[7].

In addition, most onsite construction enterprises lack the size to deal directly with manufacturing enterprises of construction materials and equipment. Accordingly, agents, wholesalers, and leasing companies constitute an essential link between the manufacturing and onsite construction subsectors. The performance of these auxiliary enterprises is also considered briefly in the section on the performance of Manufacturing of construction materials.

2.2 Key Figures at EU-level

Table 2.2 summarises key figures about the EU27 construction sector. The overall construction sector in the EU27 grew considerably prior to the beginning of the financial crisis both in terms of persons employed (just below 3% per year during the period from 2000 to 2007 with lower rates in Manufacturing of construction materials and higher rates in Professional construction services) and in terms of turnover (also just below 3% per year over the same period with lower rates in Onsite construction and higher rates in Professional construction services). Growth rates were especially high in the EU12 with annual turnover growth rates close to double figures (about four times the EU15 average and almost doubling turnover levels in absolute terms from 2000 to 2007).

Notably, though, overall productivity did not increase at a similar pace as output and labour force. In fact, productivity levels were relatively stagnant in all three subsectors from 2000 to 2007 with annual changes in wage adjusted labour productivity (i.e. in the ratio between value added per person employed – apparent labour productivity – and personnel costs per employee – average personnel costs) wobbling at or just above zero.

Nevertheless, it is also notable that between 2000 and 2007 productivity levels increased in the EU12 at the same time as they experienced the highest growth rates in persons employed and turnover. This occurred despite personnel costs increasing at almost twice the speed of the number of persons employed (indicative of concomitant improvements in working conditions in the EU12 from a low starting point).

Table 2.2: Key figures for the European construction sector

	Indicator	*2000*	*2007*	*% change per year*
EU27 Construction sector overall (Onsite construction, Manufacturing of construction materials, Professional construction services)				
Output	*Turnover (€ m, 2009 prices[8])*	1 982 367	2 389 032	2.7%

[7] For an overview of other economic activities within NACE Rev.1.1 with at least a partial relation to construction, but deemed too encompassing and/or lacking sufficient data, see Annex IV

[8] Deflation of monetary figures poses particular problems for this type of European analysis in terms of disparate price level developments across countries and distinct economic activities, which are compounded by the composite nature of the construction sector overall as here defined. To convert current monetary figures to 2009 prices, the following approximations of price level developments within each of the three construction subsectors have been applied:

1. Onsite construction: Yearly percentage changes in the Eurostat STS Construction new residential buildings prices, Construction cost index for new residential buildings, except residences for communities (F_CC11_X_CC113),

	Indicator	2000	2007	% change per year
	Value added (€ m, 2009 prices)	724 135	847 677	2.3%
Labour force	*Number of persons employed*	16 899 203	20 295 000	2.7%
	Personnel costs (€ m, 2009 prices)	480 477	520 377	1.1%
Productivity	*Value added per person employed*	42 850	41 719	-0.4%
	Wage adjusted labour productivity	123%	132%	1.0%
EU 12 Construction sector overall				
Output	*Turnover (€ m, 2009 prices)*	113 996 (6%)	214 494 (9%)	9.5%
	Value added (€ m, 2009 prices)	32 948 (5%)	59 243 (7%)	8.7%
Labour force	*Number of persons employed*	3 009 452 (18%)	3 686 118 (18%)	2.9%
	Personnel costs (€ m, 2009 prices)	19 294 (4%)	28 312 (5%)	5.6%
Productivity	*Value added per person employed*	10 948	16 072	5.6%
	Wage adjusted labour productivity	134%	172%	3.6%
Onsite construction (NACE section F)				
Output	*Turnover (€ m, 2009 prices)*	1 449 587 (73%)	1 711 590 (72%)	2.4%
	Value added (€ m, 2009 prices)	501 034 (69%)	577 041 (68%)	2.0%
Labour force	*Number of persons employed*	12 264 688 (73%)	14 788 000 (73%)	2.7%
	Personnel costs (€ m, 2009 prices)	345 342 (72%)	362 222 (70%)	0.7%
Productivity	*Value added per person employed*	40 852	39 021	-0.7%
	Wage adjusted labour productivity	120%	130%	1.2%
Manufacturing of construction materials				

available for NACE section F (NACE Rev.2) for most individual Member States as well as for the EU27 and EU15. Individual Member State figures deflated by use of individual time-varying deflator or if missing by use of appropriate aggregate time-varying deflator, i.e. EU15 or NMC.

2. Manufacturing of construction materials: Yearly percentage changes in the Eurostat STS Industry producer prices, Domestic output price index, available for NACE subdivisions C1622, C1623 and C2332 as well as for NACE divisions C235, C236, C237 and C251 (NACE Rev.2) for the EU27 and EU15. Proxy for price developments in Manufacture of builders' carpentry and joinery then calculated as weighted average of C1622 (5%) and C1623 (95%) based on relative sizes of subdivisions in terms of turnover, value added and personnel costs. Proxy for price developments in EU12 reverse engineered from relationship between price developments for the EU27 and EU15. Individual Member State figures deflated by use of appropriate aggregate time-varying deflator, i.e. EU15 or NMC.
3. Professional construction services: Yearly percentage changes in the Eurostat STS Services producer prices, Total output price index, available for NACE section M71 (NACE Rev.2) for a limited set of individual Member States as well as for the EU27 and EU15. Special issues arise due to lack of data prior to 2007. Consequently, constant yearly deflator calculated as mean of known values for the years 2007, 2008 and 2009. Proxy for price developments in EU12 reverse engineered from relationship between price developments for the EU27 and EU15. Individual Member State figures deflated by use of appropriate aggregate time invariant deflator, i.e. EU15 or NMC.
4. Real estate services: No directly applicable measure of price developments within the real estate market exists in the Eurostat STS published data. Accordingly, yearly percentage changes in the Eurostat STS Construction new residential buildings prices, Construction costs index for new residential buildings, except residences for communities (F_CC11_X_CC113) have been applied for lack of a better proxy. See further details in relation to deflation of price development within Onsite construction above.

	Indicator	2000	2007	% change per year
Output	*Turnover (€ m, 2009 prices)*	297 460 (15%)	360 455 (15%)	2.8%
	Value added (€ m, 2009 prices)	101 797 (14%)	115 485 (14%)	1.8%
Labour force	*Number of persons employed*	2 393 996 (14%)	2 592 200 (13%)	1.1%
	Personnel costs (€ m, 2009 prices)	64 652 (13%)	67 940 (13%)	0.7%
Productivity	*Value added per person employed*	42 522	44 551	0.7%
	Wage adjusted labour productivity	141%	152%	1.1%
Professional construction services				
Output	*Turnover (€ m, 2009 prices)*	235 319 (12%)	316 987 (13%)	4.3%
	Value added (€ m, 2009 prices)	121 304 (17%)	154 151 (18%)	3.5%
Labour force	*Number of persons employed*	2 240 519 (13%)	2 914 800 (14%)	3.8%
	Personnel costs (€ m, 2009 prices)	70 483 (15%)	90 215 (17%)	3.6%
Productivity	*Value added per person employed*	54 141	52 886	-0.3%
	Wage adjusted labour productivity	122%	123%	0.1%
Real estate				
Output	*Turnover (€ m, 2009 prices)*	477 582	616 068	3.7%
	Value added (€ m, 2009 prices)	233 935	297 766	3.5%
Labour force	*Number of persons employed*	1 996 674	3 070 000	6.3%
	Personnel costs (€ m, 2009 prices)	51 438	68 794	4.2%
Productivity	*Value added per person employed*	117 163	96 992	-2.7%
	Wage adjusted labour productivity	319%	301%	-0.8%

Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Percentages in parenthesis indicate shares of construction sector overall totals

Developments in wage adjusted labour productivity for the overall construction sector still compare favourably to developments in most other sectors of the EU27economy as a whole during the same period as shown in Table 2.3 (productivity levels are comparatively low, however).

Table 2.3: Wage adjusted labour productivity across NACE sections in European industry and business (EU27)

NACE section	2000	2007	% change per year
European business (NACE sections C to K minus J)	*148%*	*153%*	*0.5%*
C Mining and quarrying	*350%*	*389%*	*1.5%*
D Manufacturing	*149%*	*153%*	*0.4%*
E Electricity, gas and water supply	*251%*	*315%*	*3.3%*
F (Onsite) Construction	*120%*	*130%*	*1.2%*

G Whole and retail trade; repair...	*138%*	*147%*	*0.9%*
H Hotels and restaurants	*136%*	*126%*	*-1.1%*
I Transport, storage and communication	*152%*	*168%*	*1.4%*
K Real estate, renting and business activities	*163%*	*156%*	*-0.6%*

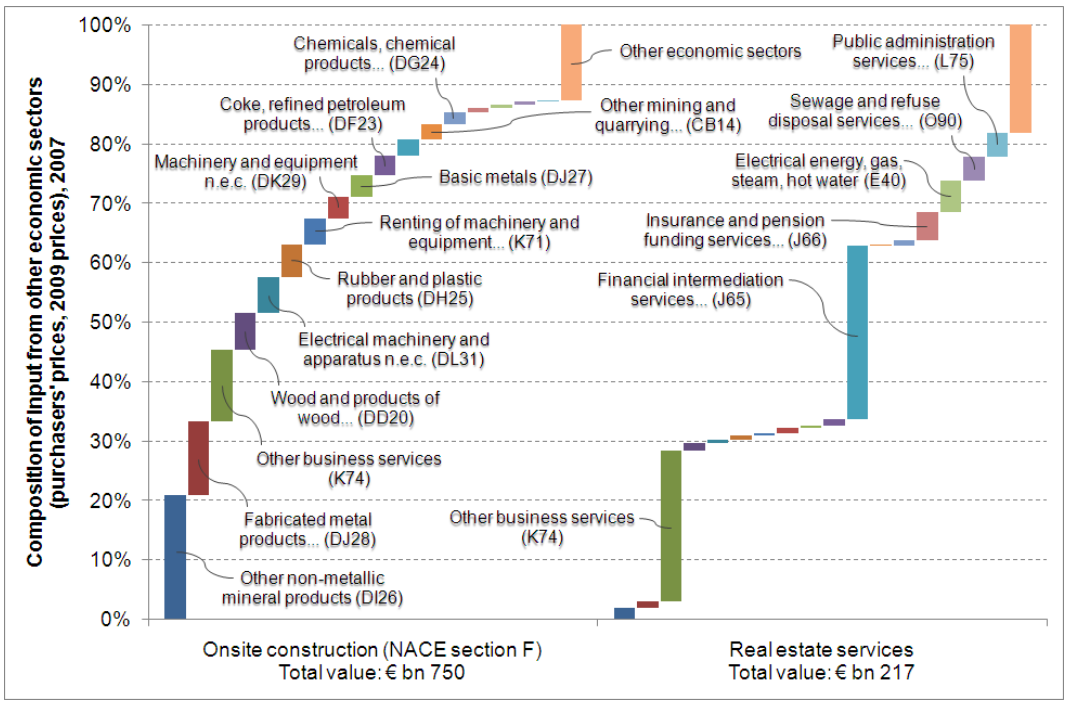
Source: Eurostat SBS (NACE Rev.1.1) and own calculations

2.2.1 Importance of the construction sector for other sectors

The construction sector is important for the European and global economy. In 2007, the overall sector employed 15% of all persons employed in European industry and business (NACE sections C to K minus J) while generating 10% of turnover and 14% of value added. Disregarding trade and services, these figures further increase to 39% of persons employed and 23% and 31% of turnover and value added respectively. By country, the overall construction sector comprises as much as 20-25% of persons employed in national businesses in Cyprus, Luxembourg and Spain in 2007, 16-18% of turnover in Cyprus, Latvia and Spain, and 23-24% of value added in Cyprus and Spain.

Developments in the construction sector also have a significant indirect impact on developments in other sectors of the economy. Most obviously, the link to the financial sector has been made patently clear, as the financial crisis was started by a surge in residential housing prices and the subsequent collapse in the residential housing market, first in the US and later in Europe and elsewhere. However, many other sectors also are affected by the construction sector growth or lack thereof as indicated in Figure 2.1 below.

Figure 2.1: Estimated consumption of output from other sectors by Onsite construction and Real estate services in EU27, 2007



Source: Eurostat input-output tables and own calculations. 2006 figures used for Poland, Portugal and Portugal while no recent data available for Bulgaria, Cyprus, Latvia and Malta. Figures do not include consumption of construction work and real estate services within the two subsectors (a total estimated worth of € 556bn)

Figure 2.1 shows that in 2007 the EU27 Onsite construction consumed € 750bn of intermediate products and services from other sectors than construction (NACE section F), corresponding to roughly 44% of the subsector's turnover. The economic activities most closely intertwined with activities in Onsite construction in terms of the absolute value of intermediate output that year were the Manufacture of fabricated metal products (NACE section DJ28), non-metallic mineral products (NACE section DI26, e.g. products made of glass, clay and stone) wood and wood products (NACE DD20) and electrical machinery and apparatus (NACE section DL31), as well as various business services activities (NACE section K74). These connections are hardly surprising given the inclusion of significant parts of most of these NACE sections within the Manufacturing of construction materials and Professional construction services subsectors. Still, approximately half of the € 750bn worth of intermediate products and services consumed within Onsite construction derive from other parts of the economy such as the Manufacture of rubber and plastic products (NACE section DH25) and machinery and equipment (NACE section DK29) and Renting of machinery and equipment without operator (NACE section K71). In addition, the figure shows that Real estate services in the EU27 consumed another € 217bn of intermediate products and services from other sectors than Onsite construction and Real estate services in 2007; most notably from Financial intermediation services (NACE section J65) and various business services activities (NACE section K74).

2.3 Performance indicators

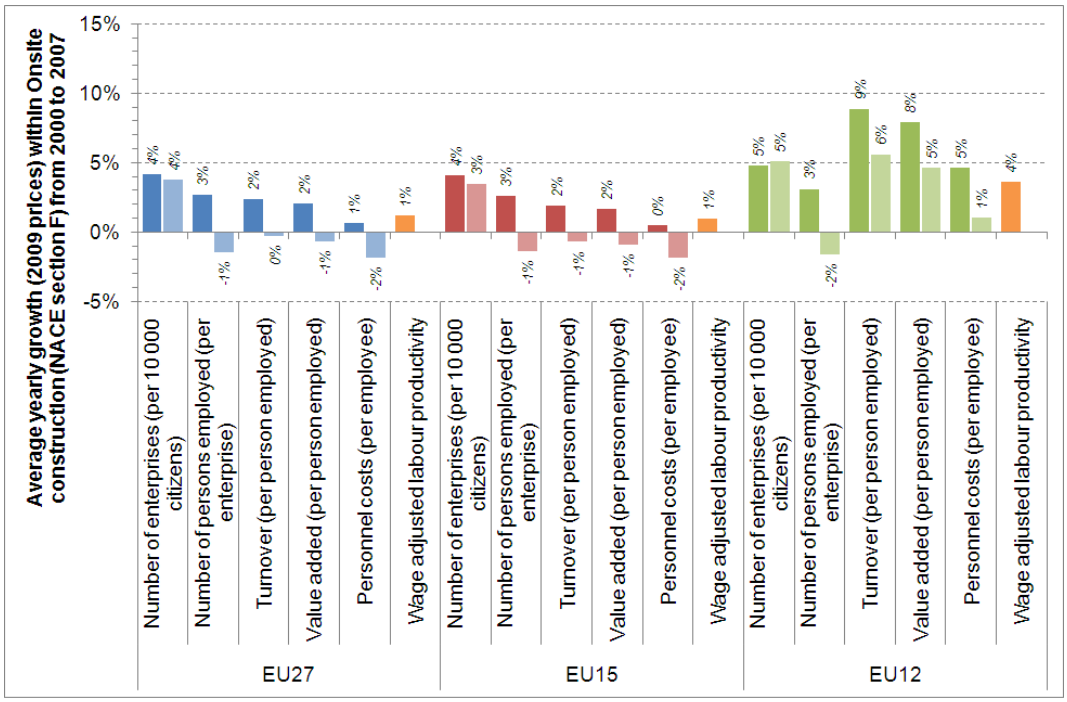
2.3.1 Onsite construction (NACE section F)

Table 2.4: Relative performance in Onsite construction (NACE section F), 2007

	Number of enterprises per 10 000 citizens	*Number of persons employed per enterprise*	*Turnover per person employed (€ '000, 2009 prices)*	*Value added per person employed (€ '000, 2009 prices)*	*Personnel costs per employee (€ '000, 2009 prices)*	*Wage adjusted labour productivity*
EU27	62.4	4.8	116	39	30	130%
EU15	64.6	4.8	129	44	35	128%
EU12	54.0	4.8	57	15	9	168%

Source: Eurostat SBS (NACE Rev.1.1) and own calculations. For individual Member State performance figures, see Annex V

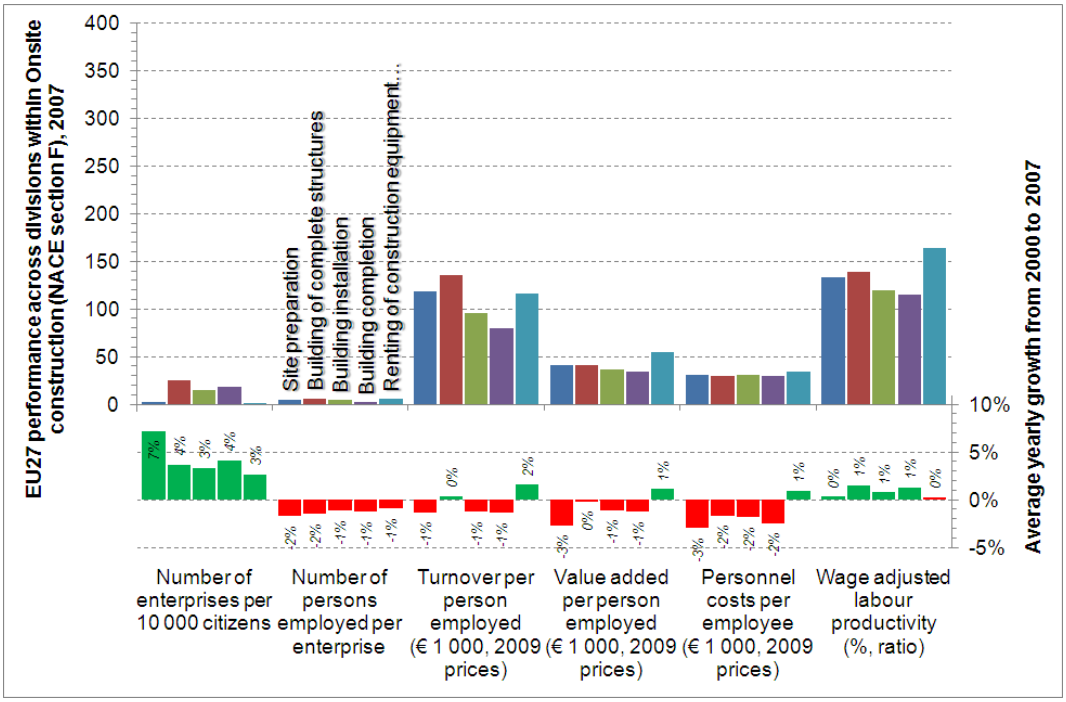
Figure 2.2: Average yearly growth (2009 prices) from 2000 to 2007 in Onsite construction in EU15 and EU12



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Right columns corresponding to terms in parentheses

Looking at annual growth rates in Onsite construction in the EU15 and the EU12, it is evident from Figure 2.2 how output grew comparatively faster on average in the EU12 between 2000 and 2007 albeit from very low nominal levels. This also remains true when looking at developments in relative terms such as turnover and value added per person employed, where the EU15 recorded negative average growth rates while the EU12 experienced significant positive growth. In contrast, on average employment grew at similar rates in both the EU15 and EU12 whether viewed in absolute or relative terms.

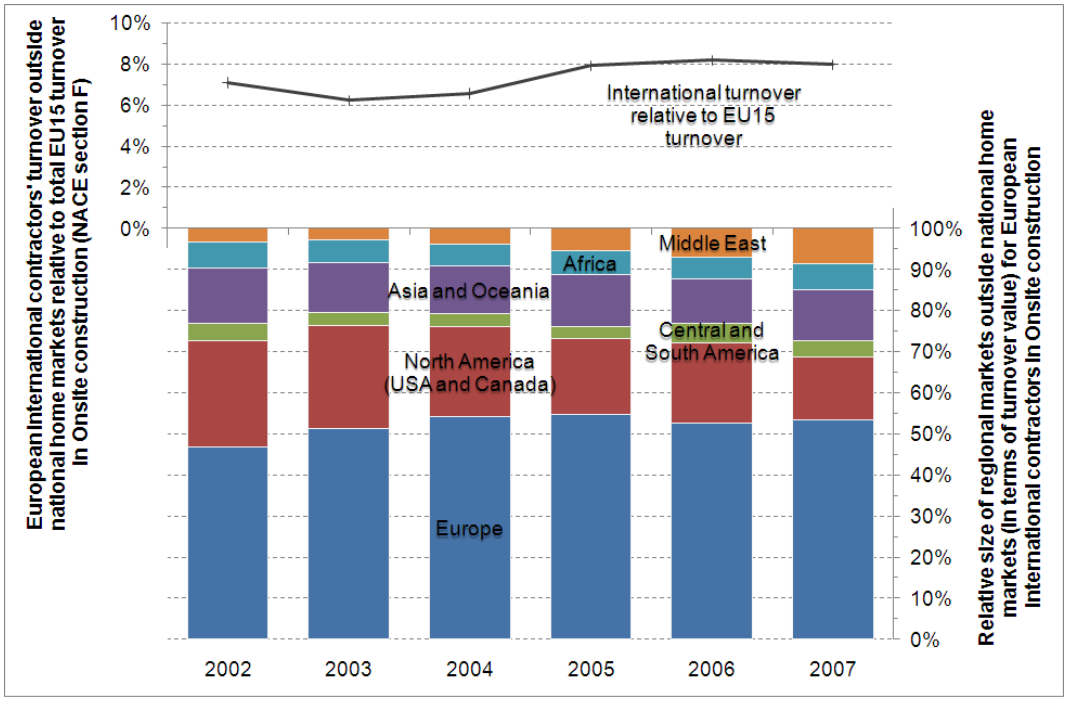
Figure 2.3: EU27 performance across divisions within Onsite construction, 2007



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. 'Renting of construction equipment...' short for 'Renting of construction equipment with operator'

Looking at annual growth rates across divisions within Onsite construction in Figure 2.3 instead, EU27 developments between 2000 and 2007 were relatively similar in each of the five divisions reflecting the close ties between activities related to Site preparation, Building of complete structures, Building installation, Building completion and Renting of construction equipment with operator. By far the largest of the divisions in terms of absolute output and labour force is Building of complete structures, encompassing the erection of all types of buildings (floors, walls and roofs) and civil engineering works such as transport and utilities infrastructure (roads, railways and bridges; electricity, gas and water supply lines). In 2007, this division alone accounted for more than half of all persons employed and turnover and value added generated in Onsite construction (as well as for more than half of all personnel costs paid). Importantly, this influential division also managed a slightly higher wage adjusted labour productivity than the other two divisions of substance, i.e. Building installation (electrical wiring and fittings, insulation, plumbing) and Building completion (plastering, joinery, floor and wall covering, painting) that are characterised by somewhat smaller enterprises and lower value added per person employed. It should be noted, however, that Building of complete structures itself contains considerable differences in enterprise size and value added per person employed across the division's constituent subdivisions.

Figure 2.4: European international contractors' turnover outside national home markets in Onsite construction (NACE section F)



Source: European International Contractors, Eurostat SBS (NACE Rev.1.1) and own calculations

Domestic contractors and enterprises carry out most onsite construction work. According to data from European International Contractors, turnover in markets outside national home markets amount to no more than 6-8% of the total turnover generated by enterprises in the EU15 (the closest comparison for the membership group of the association[9]). As shown in Figure 2.4, by far the largest regional market for European international contractors is not surprisingly the remaining countries in Europe. Activities in these countries represent roughly half of all turnover generated outside national home markets. Other important regional markets are North America, Asia and Oceania. However, between 2002 and 2007, the Middle East was the fastest growing regional market outside of Europe for European international contractors. This distribution of international contracts to European contractors across regional markets is also corroborated by the latest data from ENR on the activities of the 225 largest international contractors worldwide in Onsite construction (including 65 European companies[10]). Moreover, the ENR data suggest that 80+% of international contracts in the European market as measured by turnover value are awarded to international contractors from other European countries. Public or public-private transportation infrastructure projects account for approximately 30% of total contract values and utilities infrastructure projects (power,

[9] European International Contractors represents and promotes the interests of the European construction industry in all matters relating to the international construction business. It has as its members construction industry federations directly or indirectly affiliated to the European Construction Industry Federation (FIEC), currently covering representatives from Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal, Sweden, Switzerland, Turkey and the United Kingdom.

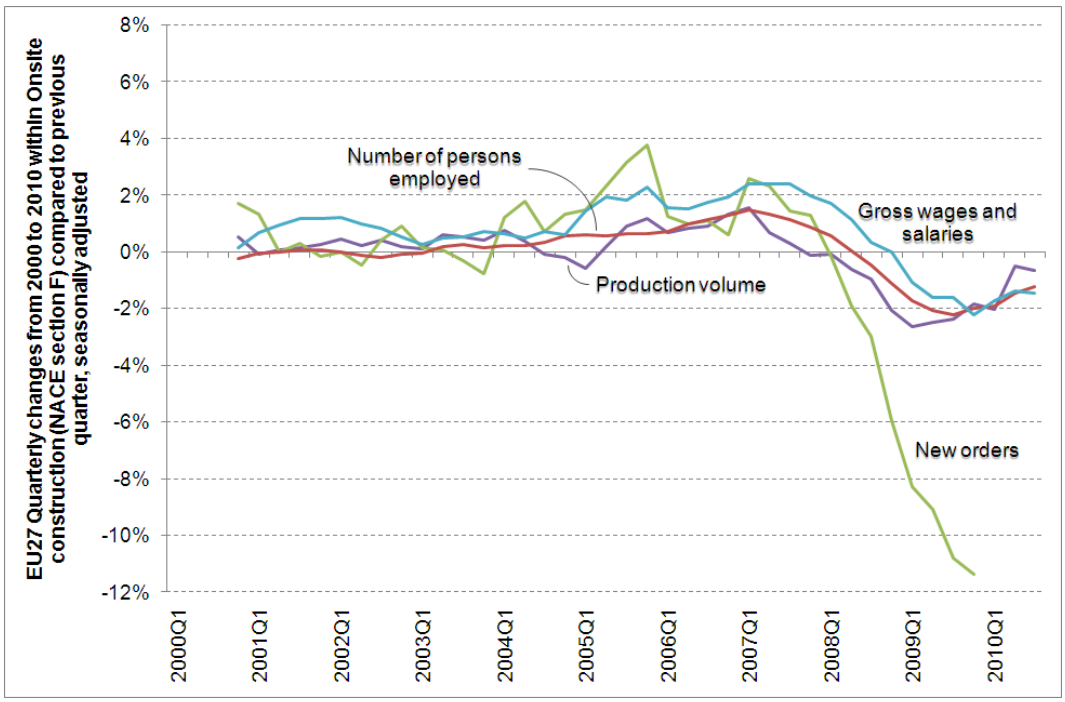
[10] ENR or Engineering News-Record is owned by the US publishing firm McGraw-Hill Construction and is one of the leading providers of construction industry news, market research and industry trends and forecasts on North American soil. It publishes nine yearly list of construction industry firms ranked by sales revenues including one for international contractors.

water, telecommunications, sewer, waste) for an additional 15%, to which must be added the unidentified value of publically financed buildings projects (ENR Top 225, 2010).

Developments since 2007

The onset of the financial crisis in 2007 significantly impacted activities in Onsite construction. As evidenced in Figure 2.5 below, the period following 2007 is marked by the abrupt end to a prolonged period of mainly positive changes in both output and employment dating back to the beginning of the decade. These events started with sharp drops in production volume and new orders during 2007 followed by corresponding drops in the number of people employed and gross wages and salaries during 2008. Since then, the EU27 has experienced an unprecedented string of consecutive quarters with negative changes, which are only now appearing to turn slowly around based on available data from Eurostat.

Figure 2.5: EU27 quarterly changes in Onsite construction (NACE section F) from 2000 to 2010

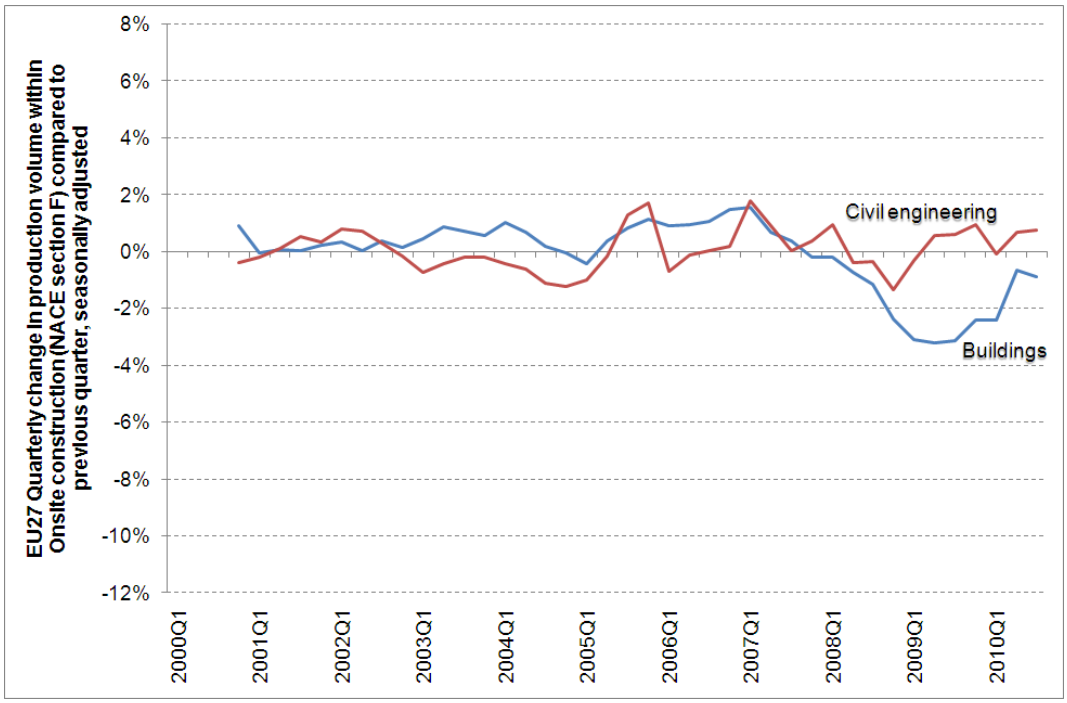


Source: Eurostat STS (NACE Rev.2). Moving average trend lines applied to smooth out fluctuations around mean trend (period set to 4). For individual Member State performance figures, see Annex V

Figure 2.6 shows how the negative impact of the financial crisis has primarily been affecting the market for buildings, while activity in the market for civil engineering has remained fairly constant after 2007, at least in terms of production volume. There are probably two reasons for this disparity. First, national governments have tried to weather the financial crisis in the short term by adopting various monetary support schemes for the Onsite construction subsector, and civil engineering is the construction type most easily targeted by governments. Alternatively, projects in the predominantly private market for buildings may be stimulated through incentive schemes, as has been the case in Denmark, but with less guarantee of effect. Second, the market for civil engineering is less volatile in the long term than the market for buildings dominated as it is by large-scale projects that may be sped up or put on hold for a while. However, they are

fundamentally necessary for society to work. In this regard, buildings projects are more like consumer goods or even luxury goods with a relatively high element of discretion. Thus, the graph also shows that much of the positive growth in Onsite construction prior to 2007 is recorded in the market for buildings, while the production volume in the market for civil engineering was actually was declining in parts of the period.

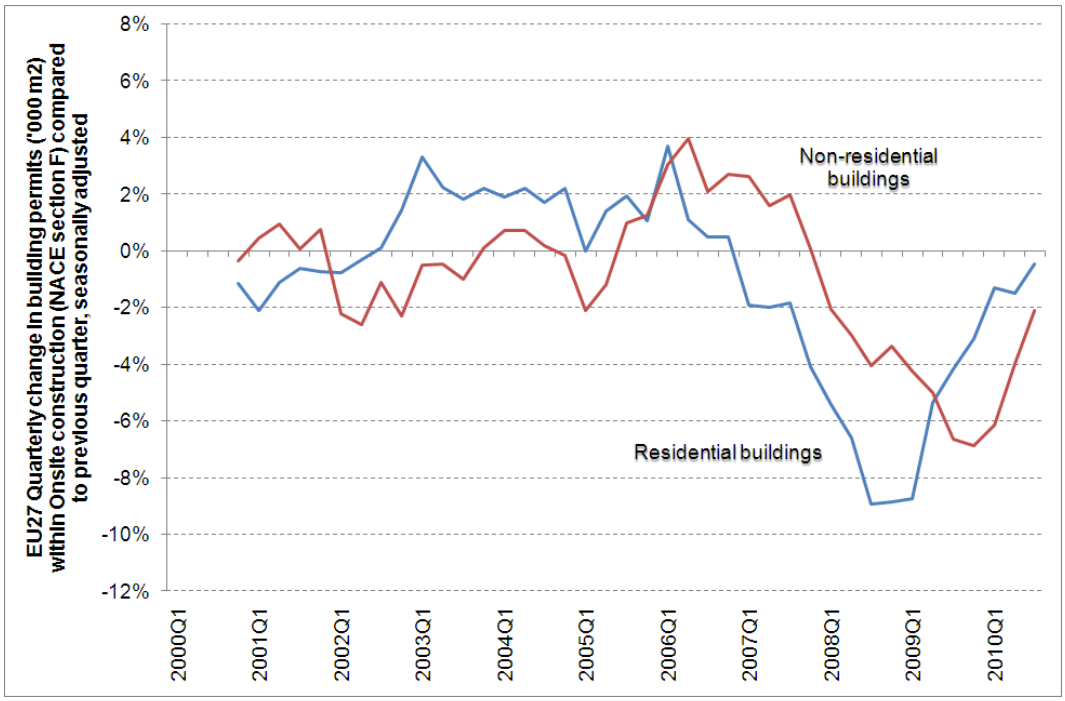
Figure 2.6: EU27 quarterly change in production volume in Onsite construction (NACE section F) by construction type



Source: Eurostat STS (NACE Rev.2). Moving average trend lines applied to smooth out fluctuations around mean trend (period set to 4)

Developments in building permits provide a measure of activity levels in separate parts of the market for buildings. As shown in Figure 2.7, these developments suggest that the impact of the financial crisis has affected the markets for residential buildings and non-residential buildings almost equally albeit with a significant time lag of roughly a year between reactions in the two markets. Thus, the combined square footage of residential building permits started to decline already in early 2006, perhaps initially as a sign of capacity issues after four years of near-continuous growth since the declines appear at first to level off in late 2006 and then again in late 2007. Meanwhile, the combined square footage of non-residential building permits only started to decline significantly in late 2007 having reacted much less over the previous six months to any potential capacity issues in the subsector or lack of investments among buyers in the residential market. However, available data indicate that the bottom in this market was not reached until late 2009 compared to late 2008 in the market for residential buildings.

Figure 2.7: EU27 quarterly change in building permits in Onsite construction (NACE section F) by type of buildings



Source: Eurostat STS (NACE Rev.2). Moving average trend lines applied to smooth out fluctuations around mean trend (period set to 4)

The above developments are largely confirmed by the most recent Euroconstruct data. This data also offer some interesting projections regarding expected future developments in the 19 member countries of the network for which data are collected on a regular basis (including the five biggest countries in the EU27 (France, Germany, Italy, Spain and the United Kingdom)[11]. Euroconstruct output indexes[12] evidence a decrease in total onsite construction output starting in 2008 and intensifying in 2009 with a one-year drop in total output of about 8% and with continuing decreases in 2010. According to Euroconstruct projections, a slight revival in total construction output is projected after 2010, but the 2013 level will still be below the 2006 level.

[11] . Euroconstruct is an international network organisation of specialised research institutes and consulting services focused on construction analysis and forecasting. It has correspondent offices and/or contributing partners in virtually all EU Member States and produces regular updates and forecasts for the EU and for most Member States. National data regularly are being gathered from 19 member countries of the network, namely Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

[12] Euroconstruct, Six monthly conferences and reports, December 2010 edition, not shown

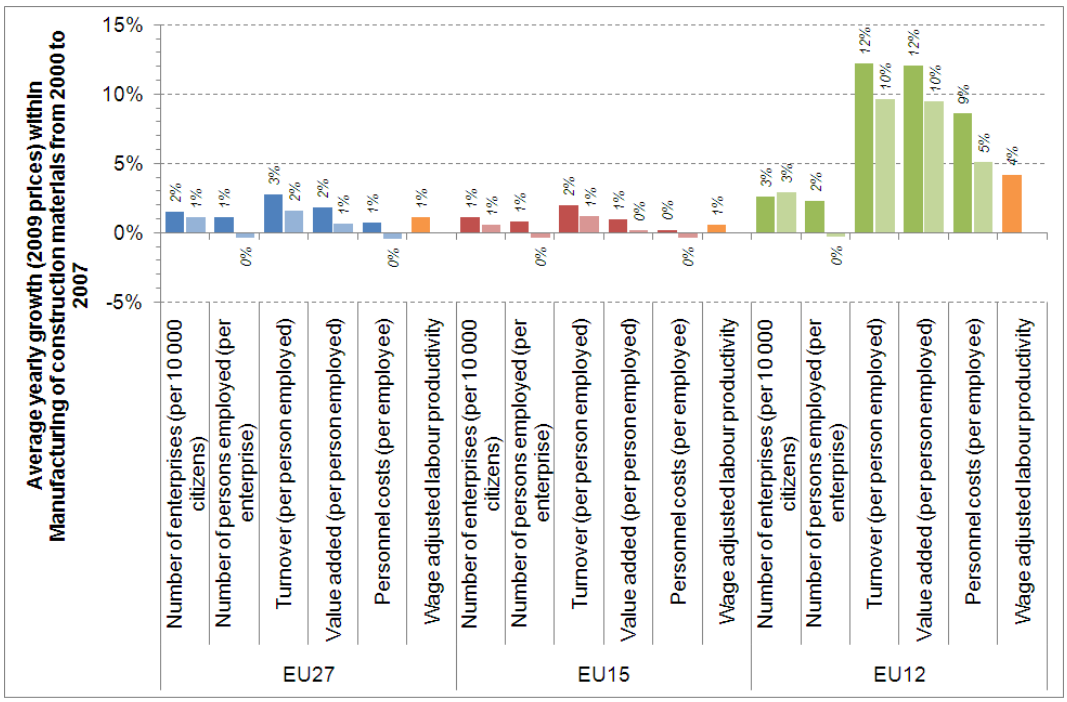
2.3.2 Manufacturing of construction materials

Table 2.5: Relative performance in Manufacturing of construction materials, 2007

	Number of enterprises per 10 000 citizens	Number of persons employed per enterprise	Turnover per person employed (€ '000, 2009 prices)	Value added per person employed (€ '000, 2009 prices)	Personnel costs per employee (€ '000, 2009 prices)	Wage adjusted labour productivity
EU27	6.2	8.5	139	45	29	152%
EU15	5.7	9.8	162	52	35	148%
EU12	7.8	7.7	65	20	10	206%

Source: Eurostat SBS (NACE Rev.1.1) and own calculations. For individual Member State performance figures, see Annex VI

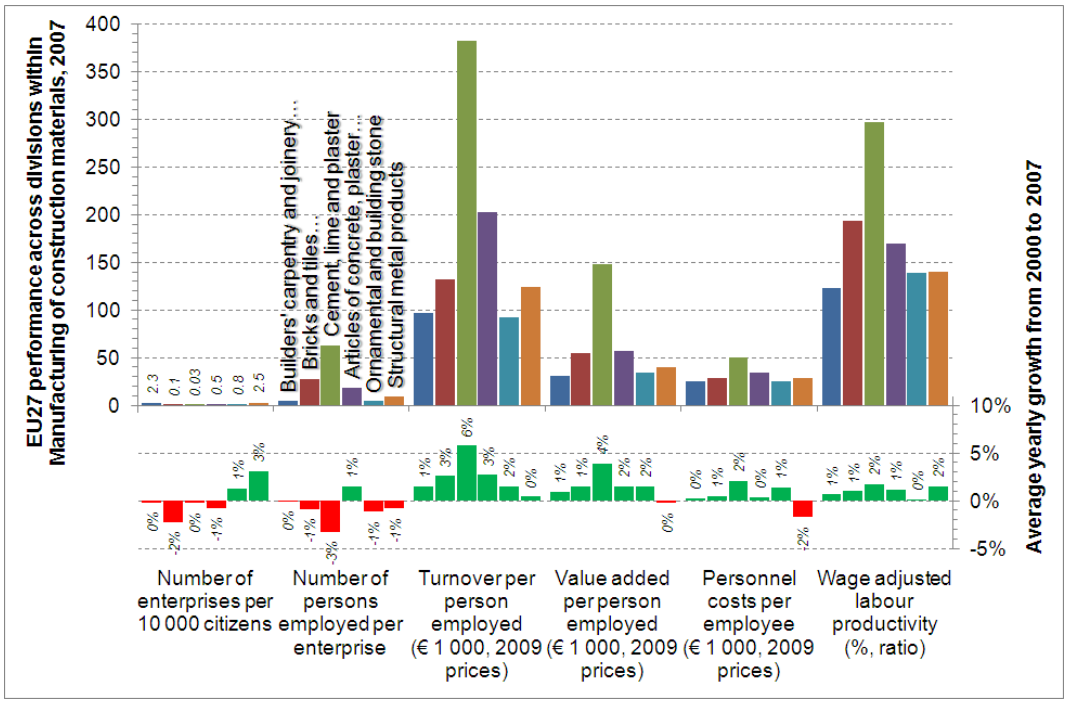
Figure 2.8: Average yearly growth (2009 prices) from 2000 to 2007 in Manufacturing of construction materials in EU15 and EU12



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Right columns corresponding to terms in parentheses

From Figure 2.8 it is evident how output in Manufacturing of construction materials, much like in Onsite construction, grew comparatively faster in the EU12 on average than in the EU15 between 2000 and 2007. This remains true also when looking at developments in relative terms, such as turnover and value added per person employed, where the EU15 recorded only slightly positive growth rates while the EU12 experienced significant positive growth. In contrast, employment, again much like in Onsite construction, grew at similar rates in both the EU15 and EU12 on average whether viewed in absolute or relative terms.

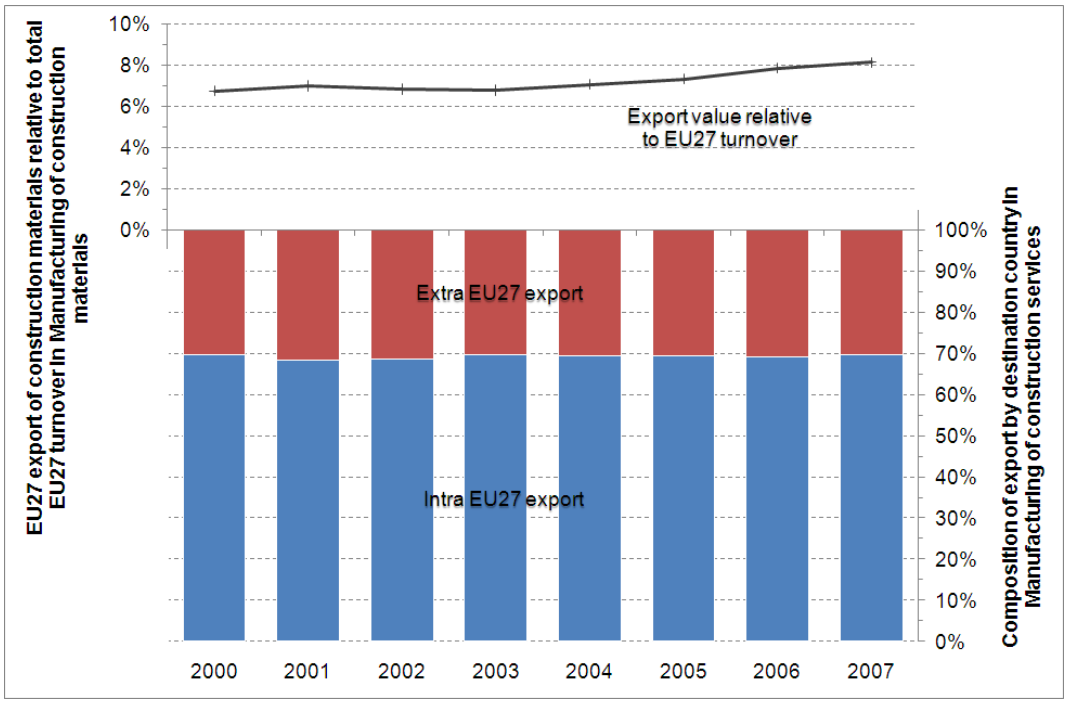
Figure 2.9: EU27 performance across divisions within Manufacturing of construction materials, 2007



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. 'Builders' carpentry and joinery...' short for 'Builders' carpentry and joinery in wood', 'Bricks and tiles...' short for 'Bricks and tiles and other baked clay products', 'Articles of concrete, plaster...' short for 'Articles of concrete, plaster or cement'

Figure 2.9 shows annual growth rates across divisions within Manufacturing of construction materials instead of by major country grouping. The figure shows that EU27 developments over the period from 2000 and 2007 varied more from division to division in the subsector than was the case in Onsite construction. While all divisions in general experienced positive growth in terms of relative output and wage adjusted labour productivity, it is apparent how growth across these variables was notably higher in Manufacture of cement, lime and plaster than in any of the other divisions. At the same time, the average number of persons employed per enterprise decreased notably more in this division. This suggests that the significant gains in relative output and productivity in large part reflect rationalisations in the industry. This interpretation is corroborated by practically zero growth in the number of enterprises and absolute turnover levels growing no faster in the division than in several of the other divisions over the period and slower than in some. In the large divisions, Manufacture of structural metal products, Manufacture of articles of concrete, plaster or cement and Manufacture of builders' carpentry and joinery (accounting for approximately 40%, 20-30% and 15-20% of all persons employed and turnover and value added generated in the subsector, respectively), developments were more moderate albeit still largely positive. Thus, the graph shows that on average these divisions are characterised by a slightly higher number of enterprises relative to population size each employing comparatively fewer persons. This is a more likely explanation for the overall lower wage adjusted labour productivity levels in these divisions compared to the Manufacture of cement, lime and plaster which can be explained by fewer economies of scale.

Figure 2.10: EU27 export in Manufacturing of construction materials



Source: Eurostat COMEXT, Eurostat SBS (NACE Rev.1.1) and own calculations

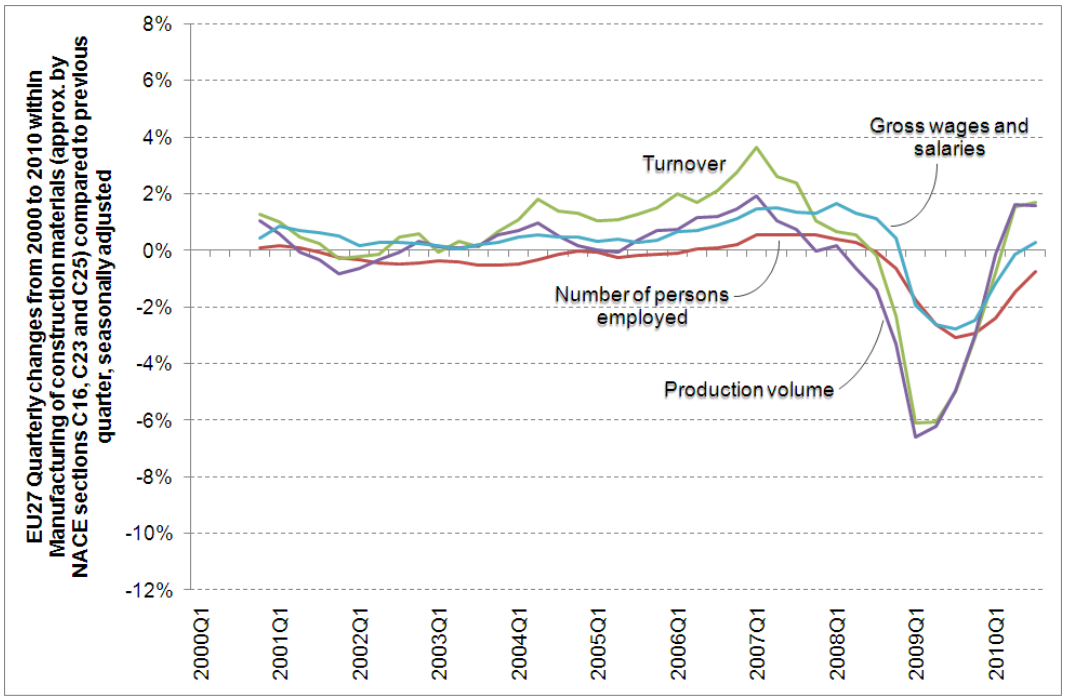
Roughly 8% of manufactured construction materials in the EU27 as measured in terms of turnover were exported in 2007. Figure 2.10 shows that this represents a slight increase over previous years. Most exported materials are to other countries within the EU27 accounting for approximately 70% of total exports and as much as 80% of exported bricks and tiles and articles of cement, plaster and lime.

Developments since 2007

The onset of the financial crisis in 2007 has also impacted activities in Manufacturing of construction materials. Figure 2.11 shows that the abrupt downturn in both output and employment recorded in Onsite construction is mirrored by similarly dramatic drops in production volume and turnover from early 2007 onwards as well as in the number of persons employed and gross wages and salaries after early 2008. In fact, the changes in production volume and the number of persons employed appear to have been even more pronounced in Manufacturing of construction materials than in Onsite construction. However, the exact impact level is difficult to ascertain based on available data since the data include a number of closely related economic activities not strictly part of the subsector[13].

[13] The general availability of Eurostat STS data is very limited beneath the NACE section level. It is thus impossible to precisely detail developments within the various NACE divisions and subdivisions that make up the composite Manufacturing of construction materials subsector as here defined. However, Manufacturing of construction materials comprises significant shares of NACE sections C16, C23 and C25 and trends in these broader categories of economic activity thus cannot move entirely independently of activities within the relevant NACE subcategories, or at least are highly unlikely to do so. Moreover, trends within each of these broader categories of economic activity are highly similar suggesting an impact of the financial crisis common to most types of economic activity. Accordingly, aggregate developments within Manufacturing of construction materials have been approximated as the weighted average of changes within C16 (15%), C23 (45%) and C25 (40%) based on relative sizes of relevant divisions and subdivisions in terms of persons employed, turnover, value added and personnel costs.

Figure 2.11: EU27 quarterly changes in Manufacturing of construction materials from 2000 to 2010

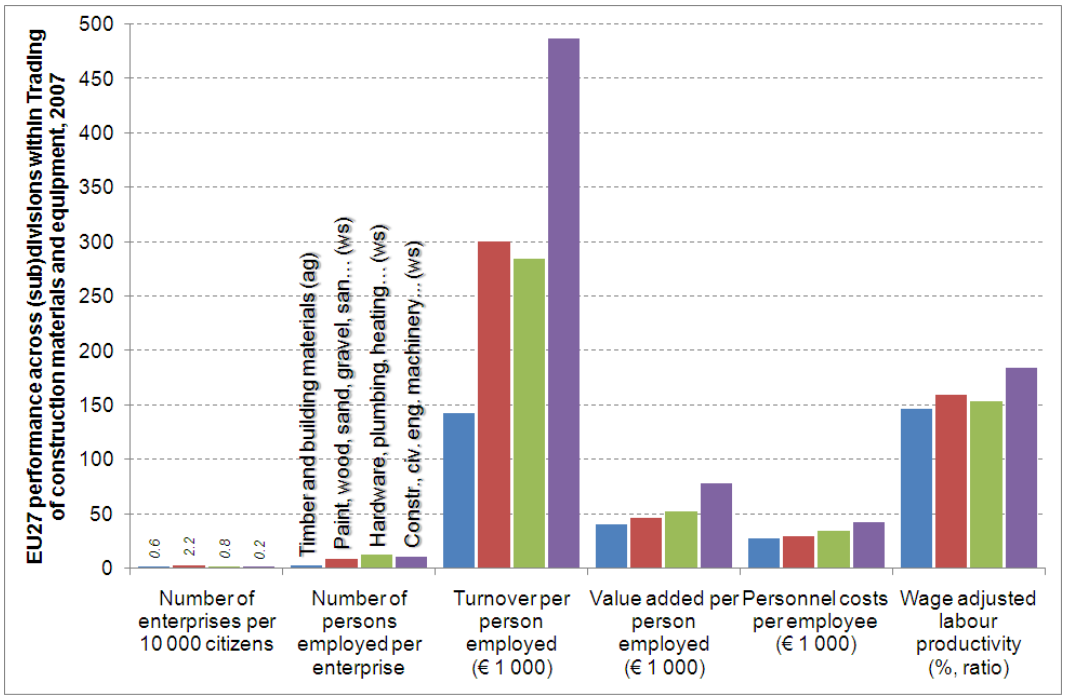


Source: Eurostat STS (NACE Rev.2). Moving average trend lines applied to smooth out fluctuations around mean trend (period set to 4). For individual Member State performance figures, see Annex VI

Trading of construction materials and equipment

The prevalence of small enterprises in Onsite construction merits a brief look at the distribution channels of manufactured construction products through various types of intermediary sellers. In 2007, there were roughly 190,000 such wholesale enterprises in the EU27 employing almost 1.5 million persons and generating a € 462bn turnover. Moreover, there were also an unaccounted number of enterprises engaged in the renting of construction and civil engineering machinery and equipment without operator (NACE subdivision G71.32). Figure 2.12 shows the performance across the four most relevant types of wholesalers, i.e. Agents involved in the sale of timber and building materials (NACE subdivisions G51.13), Wholesale of wood, construction materials and sanitary equipment (NACE subdivision G51.53), Wholesale of hardware, plumbing and heating equipment and supplies (NACE subdivision G51.54) and Wholesale of mining, construction and civil engineering machinery (NACE subdivision G51.82). The high turnover per person employed in Wholesale of mining, construction and civil engineering machinery probably reflects the size and price of such machinery compared to other products. Nevertheless, the most substantial subdivisions are Wholesale of wood, construction materials and heating equipment and Wholesale of hardware, plumbing and heating equipment and supplies accounting for 55-60% and 30% respectively of all persons employed and turnover and value added generated within this auxiliary sector.

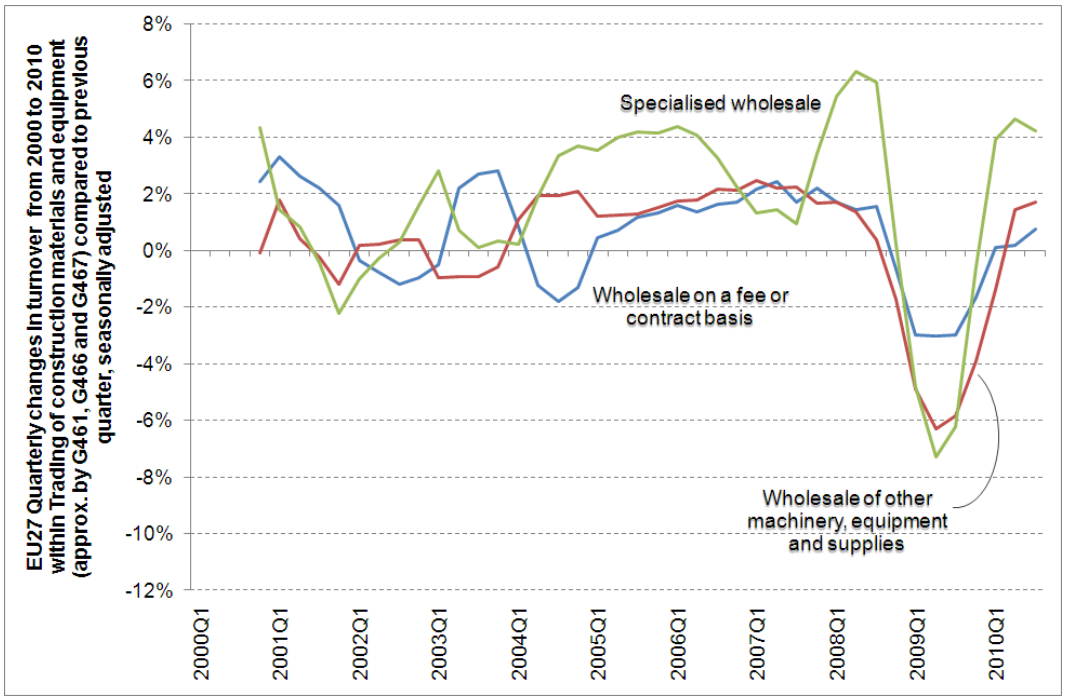
Figure 2.12: EU27 performance across subdivisions within Trading of construction materials and equipment, 2007



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. 'Timber and building materials (ag)' short for 'Agents involved in the sale of timber and building materials', 'Paint, wood, sand, gravel, san... (ws)' short for 'Wholesale of wood, construction materials and sanitary equipment', 'Hardware, plumbing, heating... (ws)' short for 'Wholesale of hardware, plumbing and heating equipment and supplies', 'Constr., civ. eng. machinery... (ws)' short for 'Wholesale of mining, construction and civil engineering machinery'

The impact of the financial crisis on Trading of construction materials and equipment is difficult to pinpoint precisely based on available data. However, developments in each of the three broader categories of wholesale for which information on quarterly changes in turnover exists, all indicate significant drops in turnover starting in early 2008 as shown in Figure 2.13. These developments correspond well with developments in both Manufacturing of construction materials and Onsite construction, which makes good sense given that Trading of construction materials and equipment constitutes the principal link between the two subsectors.

Figure 2.13: EU27 quarterly changes in Trading of construction materials and equipment from 2000 to 2010



Source: Eurostat STS (NACE Rev.2), Moving average trend lines applied to smooth out fluctuations around mean trend (period set to 4)

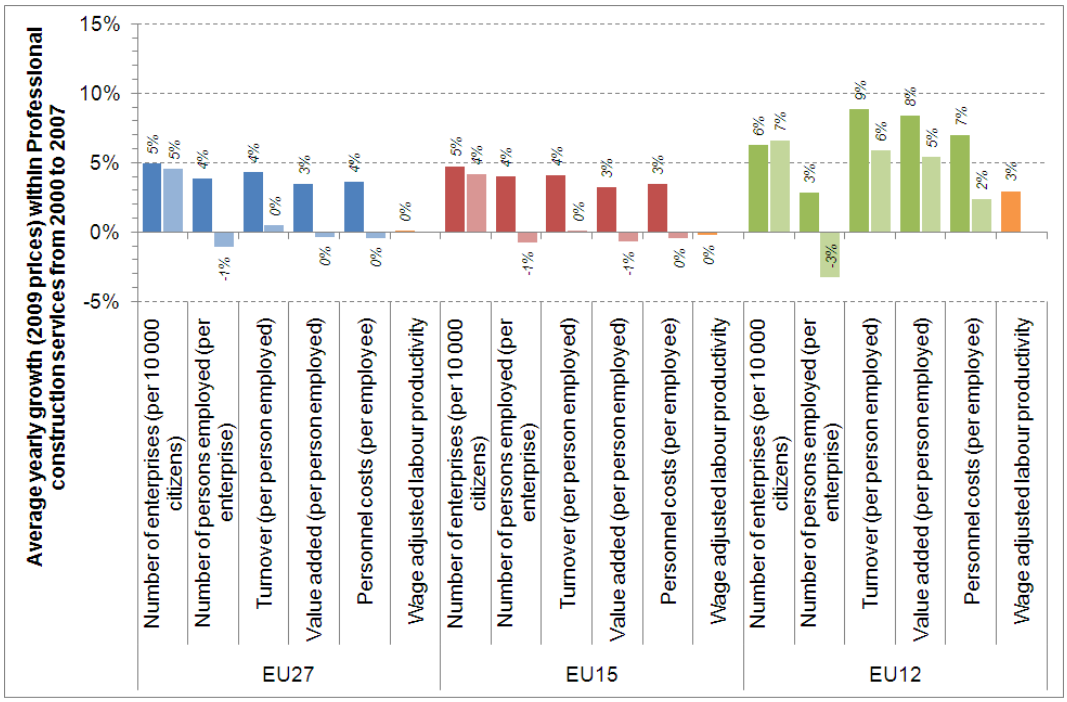
2.3.3 Professional construction services

Table 2.6: Relative performance in Professional construction services, 2007

	Number of enterprises per 10 000 citizens	*Number of persons employed per enterprise*	*Turnover per person employed (€ '000, 2009 prices)*	*Value added per person employed (€ '000, 2009 prices)*	*Personnel costs per employee (€ '000, 2009 prices)*	*Wage adjusted labour productivity*
EU27	19.8	3.0	109	53	43	123%
EU15	21.3	3.0	118	58	48	122%
EU12	14.1	2.8	53	20	14	147%

Source: Eurostat SBS (NACE Rev.1.1) and own calculations. For individual Member State performance figures, see Annex VII

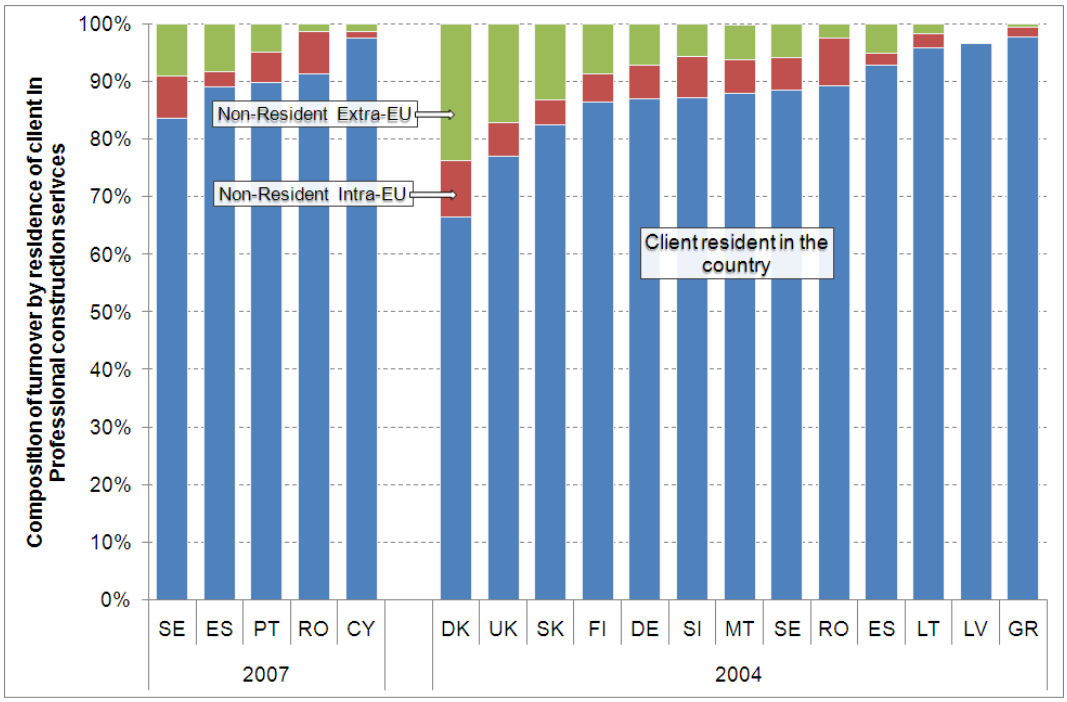
Figure 2.14: Average yearly growth (2009 prices) from 2000 to 2007 in Professional construction services in EU15 and EU12



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Right columns corresponding to terms in parentheses

The same differences can be observed in Figure 2.14 as in Figure 2.2 and Figure 2.8 for Professional construction services with comparatively faster average growth in output in the EU12 compared to the EU 15 between 2000 and 2007 in both absolute and relative terms. However, average employment growth in this subsector has been higher in the EU15 than in the EU12 in absolute as well as relative terms (the former is the trend breaker).

Figure 2.15: Turnover shares by residence of client in Professional construction services



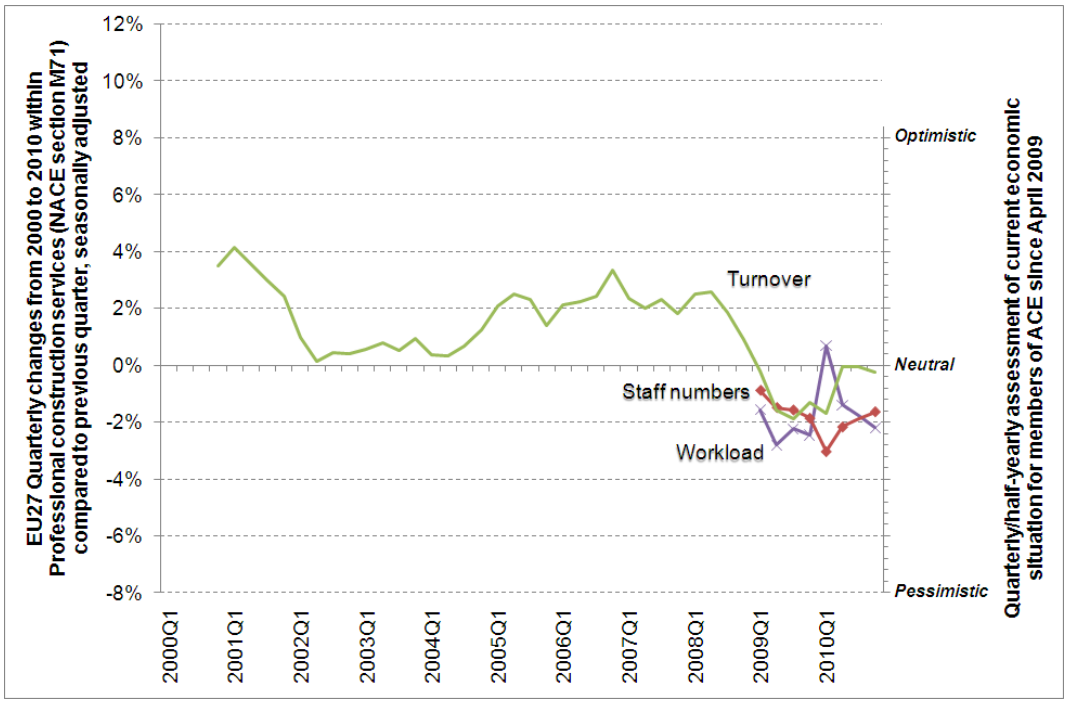
Source: Eurostat SBS (NACE Rev.1.1) and own calculations

Only partial data are available to assess the activities of European professional construction services enterprises beyond national home markets. These data suggest that also among architects and consulting engineers, the focus is mainly on participation in domestic projects although slightly larger shares of turnover are accounted for by clients resident in other countries compared to Onsite construction and Manufacturing of construction materials. Unlike in the other subsectors, clients resident outside of the EU27 tend to be at least as significant as clients resident in other countries within the EU27 as shown in Figure 2.15.

Developments since 2007

Turnover is the only one short-term performance indicator available to assess developments since 2007 in Professional construction services. However, as in all the indicators for the other two subsectors this indicator shows a clear drop in activity associated with the onset of financial crisis. Figure 2.16 shows that a sustained period of positive quarterly changes in turnover levels was followed by negative changes from early 2008 onwards. This timing largely coincides with the most significant drops in activity in both Onsite construction and Manufacturing of construction materials subsequent to the initial wavering and decline during 2007. Of the three subsectors, the severity of the impact appears to have been least severe in Professional construction services, as measured by the apparent depth of the trough. However, recent ACE survey estimates suggest that while staff numbers may be moving upwards again compared to 2008 levels, architects have experienced a second dip in workload after brief signs of positive change in early 2010 (2010 ACE Economic impact survey).

Figure 2.16: EU27 quarterly change in Professional construction services from 2000 to 2010



Source: Eurostat STS (NACE Rev.2) and ACE Economic impact survey. Moving average trend lines applied to Eurostat data to smooth out fluctuations around mean trend (period set to 4). ACE survey responses converted to single score by assigning weights of -1 (most pessimistic answering option), -0.5, 0, 0.5 and 1 (most optimistic answering option) to each five point scale. For individual Member State performance figures, see Annex VII

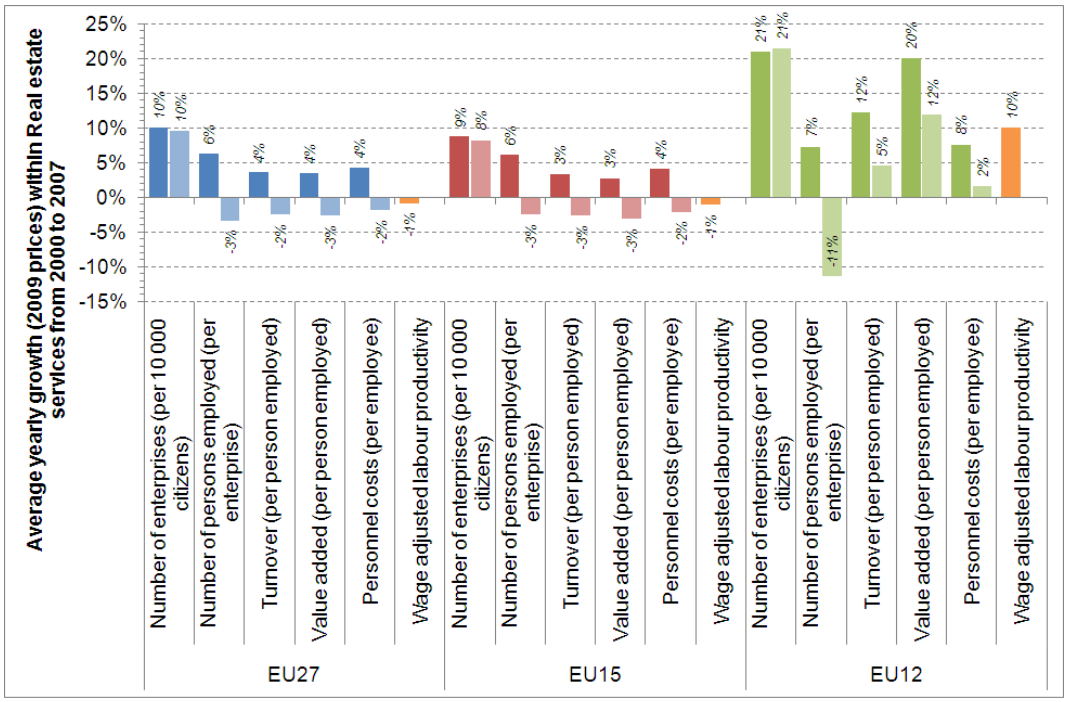
2.3.4 Real estate services

Table 2.7: Relative performance in Real estate services, 2007

	Number of enterprises per 10 000 citizens	*Number of persons employed per enterprise*	*Turnover per person employed (€ '000, 2009 prices)*	*Value added per person employed (€ '000, 2009 prices)*	*Personnel costs per employee (€ '000, 2009 prices)*	*Wage adjusted labour productivity*
EU27	25.3	2.4	201	97	32	301%
EU15	27.5	2.4	226	108	37	288%
EU12	17.1	2.8	74	43	10	418%

Source: Eurostat SBS (NACE Rev.1.1) and own calculations. For individual Member State performance figures, see Annex VIII

Figure 2.17: Average yearly growth (2009 prices) from 2000 to 2007 in Real estate services in EU15 and EU12



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Right columns corresponding to terms in parentheses

Annual growth rates in the EU15 and EU12 as shown in Figure 2.17 reveal a familiar pattern of comparatively faster average growth in output in the EU12 compared to the EU15 and roughly parallel growth in employment between 2000 and 2007. However, employment growth in the EU12 has clearly been associated with the creation of many more enterprises on an annual basis compared to the EU15. This has more than halved the average enterprise size over the period so that the average real estate service enterprise in the EU12 in 2007 was only slightly larger than the average real estate service enterprise in the EU15.

Developments since 2007

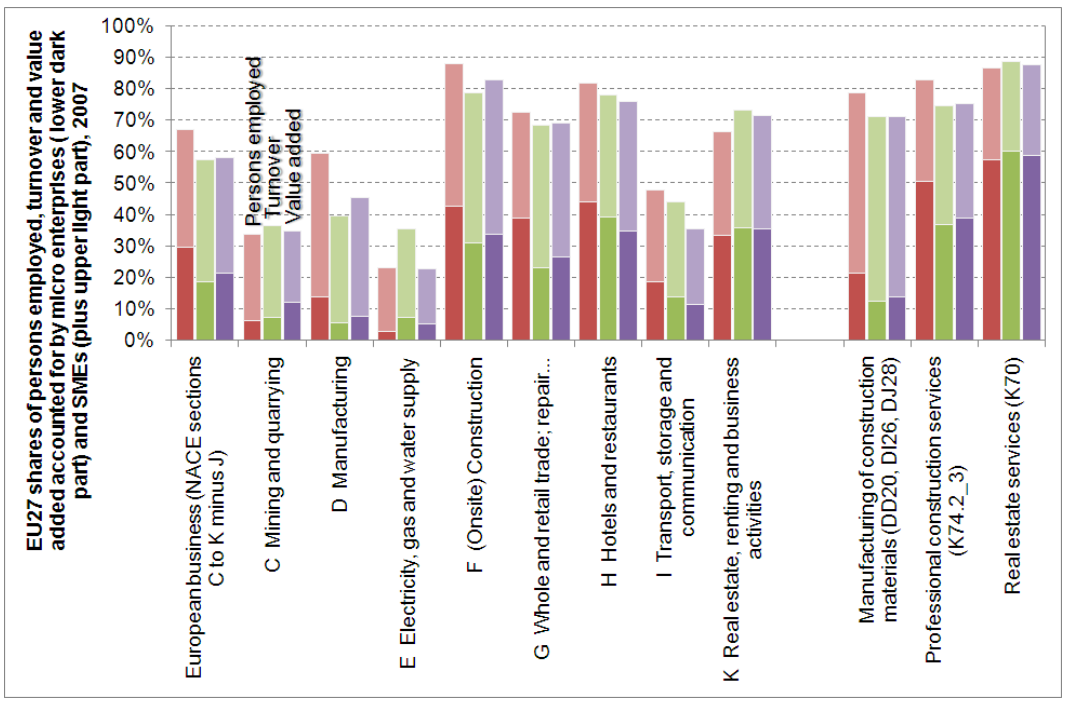
No short-term statistics are available from Eurostat in relation to developments in the Real estate services sector. Nonetheless, it seems fair to assume that the onset of the financial crisis has affected Real estate services at least as negatively as the overall construction sector given the reliance of most activities in Real estate services on the prospect of increasing prices in the various housing markets for residential and non-residential buildings. This is unlikely to be the case given the evidenced lull in activities in Onsite construction – the supply side of the housing market as it is – and that free-falling housing prices, longer selling periods, and higher vacancy rates as well as postponed, down-scaled or entirely cancelled housing projects are well-known occurrences in the last couple of years. In fact, the financial crisis is commonly attributed to the collapse of the residential housing market after a prolonged period of unrealistic price growth financed through low-security high-risk loans and speculative borrowing.

2.4 Production characteristics

2.4.1 Size distribution

In 2007, only 2,584 of the 3,090,144 registered Onsite construction enterprises in the EU27 had more than 250 persons employed and 99.9% of them were SMEs. In fact, 92% of the three million enterprises had less than 10 persons employed, accounting for 42% of all persons employed and 31% of all turnover and 34% of all value added generated in the subsector. As shown in Figure 2.18, these shares are high even considering the prevalence of SMEs across all sectors of the European economy. Available data suggest that the other two construction subsectors are also characterised by comparatively high shares of SMEs and micro enterprises compared to the averages for Manufacturing (NACE section D) and Real estate, renting and business activities (NACE section K) respectively. It is reasonable to assume that the generally small size of construction enterprises limits the internal capabilities and investment resources of individual enterprises, but may present opportunities for faster and more flexible business development as well. By country, the Member States in Southern Europe tend to have the largest proportions of SMEs as reflected in their lower average enterprise sizes. Conversely, large enterprises tend to be of slightly higher importance in Eastern Europe as reflected in the higher average enterprise sizes in several of the EU12 (albeit with a trend towards increasing shares of SMEs).

Figure 2.18: Size distribution across NACE sections in European business (EU27)

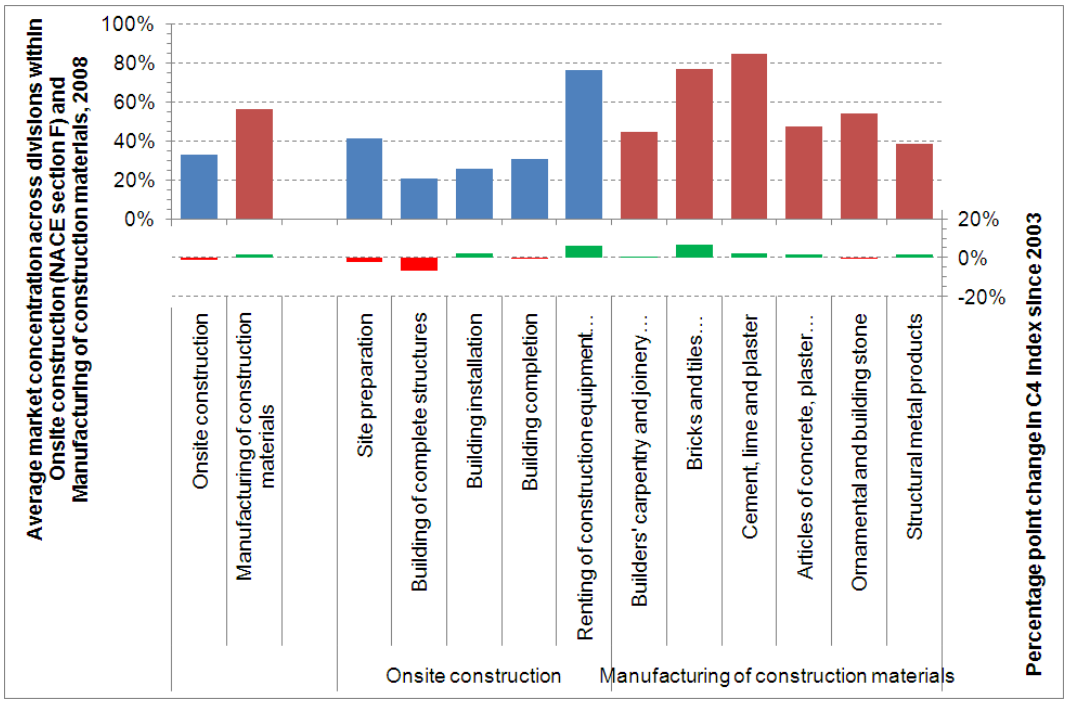


Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Manufacturing of construction materials approximated by weighted average of NACE sections DD20, DI26 and DJ28. Professional construction services cover 18 Member States only

2.4.2 Mergers, acquisition and market concentration

Consistent with the important role of SMEs, and in particular micro enterprises, in Onsite construction employment and output, the market concentration in the subsector is relatively low as measured by the C4 index of turnover generated by the four largest enterprises in each national market. Hence, on average these four enterprises accounted for no more than a third of total turnover in 2008. In contrast, on average the four largest enterprises in Manufacturing of construction materials accounted for more than half of total turnover in 2008 as shown in Figure 2.19. In principle, this implies considerable individual power to control the selling price of construction materials. Across divisions within each subsector, by far the highest C4 index scores in 2008 were recorded in the manufacture of Cement, lime and plaster and Bricks, tiles and other baked clay products as well as in Renting of construction equipment and machinery with operator. In these divisional markets, the four largest enterprises alone accounted for more than 75% of total turnover. Significant efficiencies of scale that allow the largest enterprises to reduce unit costs and sell at prices unprofitable for competitors and newcomers likely explain much of this (growing) concentration of market shares between a limited number of enterprises. Moreover, it should be noted that the market concentration in both subsectors tends to be higher in smaller countries than in larger countries, presumably due to smaller market sizes and fewer enterprises in absolute terms. Market concentration rates in Manufacturing of construction materials in the EU27 are significantly higher compared to the US markets for each of the six materials. However, the US markets are larger as well, and in relative terms reveal much the same pattern of higher C4 index scores in the markets for bricks and tiles and cement, lime and plaster (predominantly in the 40-50% range) than in any of the other construction materials markets (predominantly in the 5-25% range) according to the 2007 Economic Census.

Figure 2.19: Average market concentration across divisions within Onsite construction (NACE section F) and Manufacturing of construction materials as measured by C4 index, 2008



Source: Amadeus, Bureau Van Dijk (NACE Rev.1.1) and own calculations. C4 index indicates the share of turnover generated by the four largest enterprises in a given country and economic activity. Division index scores calculated as average of available index scores for individual Member States. 'Renting of construction equipment...' short for 'Renting of construction equipment with operator', 'Builders' carpentry and joinery...' short for 'Builders' carpentry and joinery in wood', 'Bricks and tiles...' short for 'Bricks and tiles and other baked clay products', 'Articles of concrete, plaster...' short for 'Articles of concrete, plaster or cement'. For individual Member State C4 index scores, see Annex IX

The impact of the financial crisis is also evident in the number of completed mergers and acquisitions (M&A) of enterprises in Onsite construction or Manufacturing of construction materials in the EU27 (not shown). In Manufacturing of construction materials the lowest number of M&A deals since 2003 was reached in 2009 after peak numbers in 2005-2006 while the prorated 2010 level in Onsite construction resembles the number of M&A deals in 2004, three years prior to the 2007 peak in that subsector.

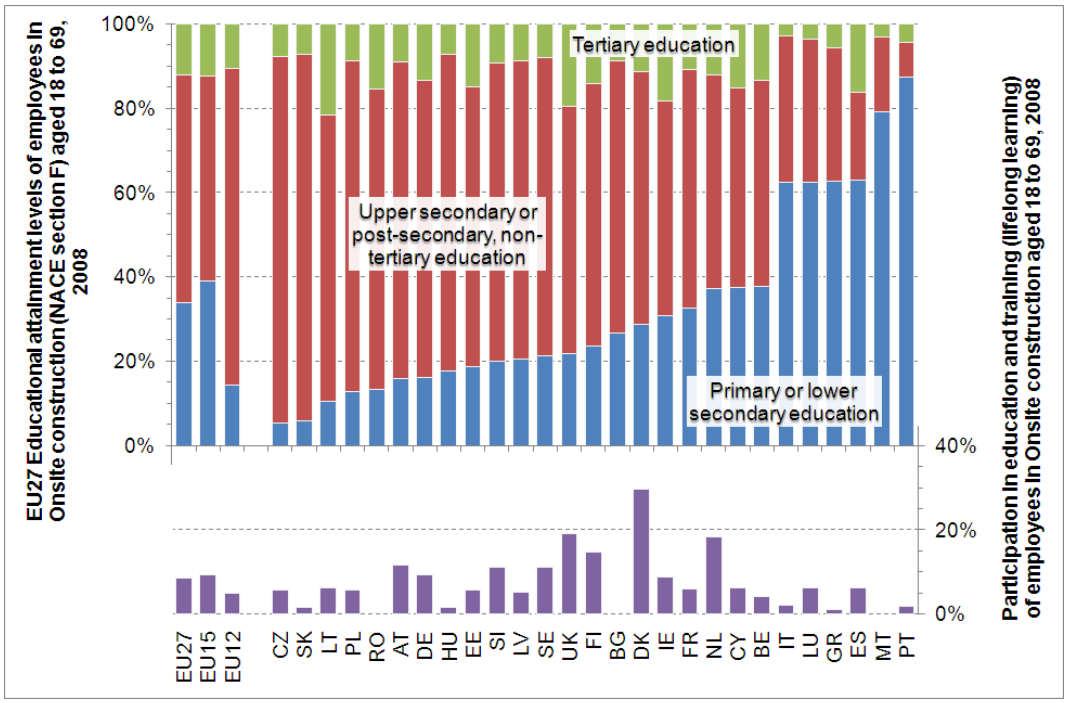
2.4.3 Skills and education

Figure 2.20 shows that the majority of employees in Onsite construction aged 18 to 69 has at least an upper secondary education and that this is the case for as many as 86% in the EU12[14]. However, the significant differences between the EU15 and EU12 averages at least partly reflect differences in the makeup of mandatory educational systems, and only about 10% of the European labour force employed in Onsite construction holds a university degree or other tertiary qualifications.

The above averages hide some notable regional patterns. Specifically, more than three in five employees in Onsite construction in the Southern European countries including Greece, Italy, Malta, Portugal and Spain have just a primary or lower secondary educational background. Luxembourg is the only other Member State where this is the case. On the other hand, the eight Member States with the lowest shares of employees in Onsite construction with just a primary or lower secondary educational background also form a tight geographical cluster in Central Europe, namely in Austria, the Czech Republic, Germany, Hungary, Lithuania, Poland, Romania, and Slovakia. Finally, employees in Northern Europe including the Nordic countries and Austria, Germany and the Netherlands as well as Ireland and the United Kingdom tend to participate relatively more in education and training although it is unclear to what extent this is an expression of continuing vocational education and training or leisure interest classes. Only in Slovenia do employees in Onsite construction participate in education and training at similar rates.

[14] According to Eurostat the average share of employees in Onsite construction aged 18 to 69 with primary or lower secondary educational background is 41%. However, also according to Eurostat no individual country among the EU12 except for Malta registers a share of employees in Onsite construction aged 18 to 69 above 37%. Moreover, the EU27 average according to Eurostat is lower than the EU15 average of 39% implying that the average for EU12 equally should be lower.

Figure 2.20: Educational attainment levels of employees in Onsite construction (NACE section F), 2008



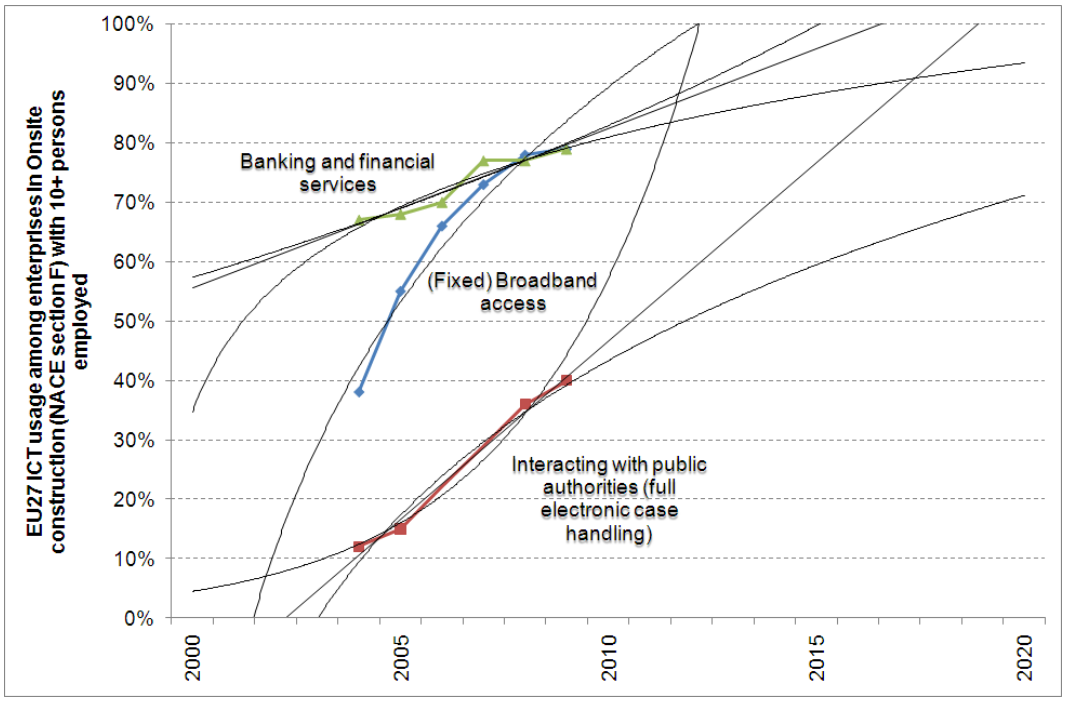
Source: Eurostat, Labour Force Survey (NACE Rev.1.1) and own calculations. See footnote for further comment on EU12 average

Over time, the shares of employees in Onsite construction aged 18 to 69 with an upper secondary and post-secondary non-tertiary education or a tertiary education have been steadily increasing in the EU27 (not shown). The incremental changes likely reflect overall changes in the educational composition of the European labour force caused by inflows of better-educated young workers. In any case, it is difficult to discern the impact of any concerted effort to improve educational levels in the limited time span of available data.

2.4.4 ICT usage

The share of enterprises in Onsite construction in the EU27 with (fixed) broadband access to the internet has increased rapidly over the last five years to nearly 80% of all enterprises with at least ten persons employed. Equally, the use of internet banking and financial services and online public services has increased over this period as shown in Figure 2.21. On all three parameters access and usage levels within this enterprise population are on par with corresponding usage levels in, for instance, Manufacturing. Little is known about the level of ICT usage among the majority of enterprises with less than 10 persons employed, but access and usage levels are presumably lower.

Figure 2.21: Use of internet banking and online public services in Onsite construction (NACE section F)



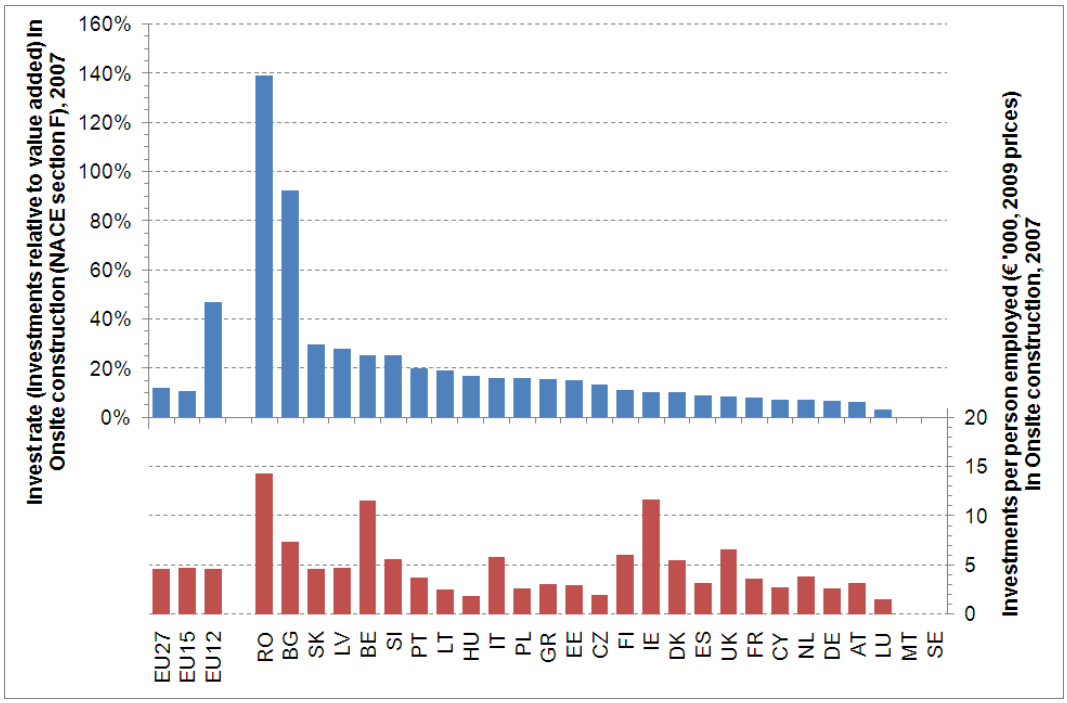
Source: Eurostat, Community survey on ICT usage and e-commerce in enterprises

While levels of broadband access and internet services use have increased rapidly over the last five years and generally compare to access and usage levels in Manufacturing, the introduction of software for electronic management of orders and purchases (internal business integration) and/or exchange of information directly with suppliers and customers (external business integration) has increased more slowly (not shown). Only about a third of all Onsite construction enterprises with at least ten persons employed uses ICT to integrate internal business processes and barely one in ten uses ICT to integrate external business processes. Both shares are lower than within Manufacturing even without accounting for the use of business software among micro enterprises. However, on a positive note, yearly increases largely match developments in Manufacturing, which may just have started to adopt such solutions earlier due to more complex supply chains.

2.4.5 Investments

The investment rate in Onsite construction in the EU27 was 12% in 2007 (i.e., the value of investments amounted to 12% of value added). Figure 2.22 shows that the countries with the highest investment rates were Romania and Bulgaria, the former with an investment rate of over 100%. The lowest rates were observed in Austria, Germany and Luxembourg. Relative to the number of persons employed rather than value added, investments in Onsite construction in the EU27 were also the highest in Romania followed by Belgium and Ireland, each with investments of over € 10,000 per person employed in 2007 compared to the EU27 average of € 4,500. Countries with the lowest investments per person employed were the Czech Republic, Hungary and Luxembourg. The size of some of these rates is remarkable and reasonably reflects the presence of extensive foreign investments in these countries.

Figure 2.22: Investment rate and investments per person employed in Onsite construction (NACE section F)



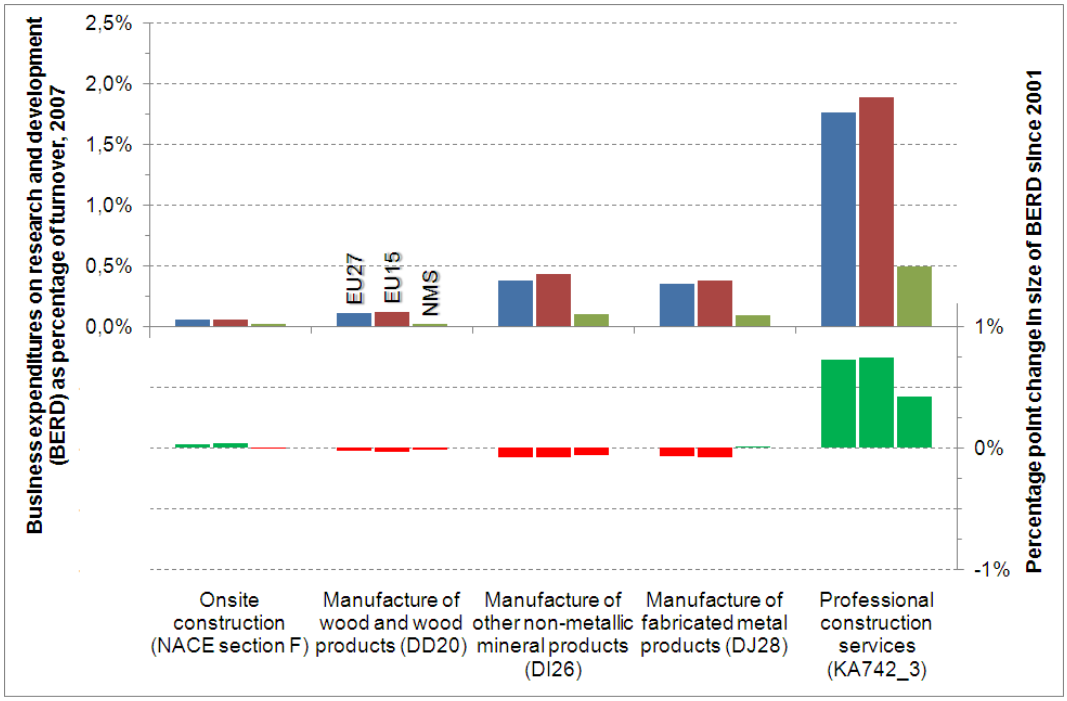
Source: Eurostat SBS (NACE Rev.1.1) and own calculations. No data available for Malta and Sweden

Recent FIEC-estimates show that after 2007 overall investment levels in Onsite construction have fallen. Especially investments in residential and non-residential buildings have decreased, while investments in civil engineering often have increased slightly. In Estonia, Lithuania and Spain, investments in new residential buildings dropped more than 50% between 2007 and 2010. In Ireland, drops in investments have exceeded 80%. Bulgaria, the Czech Republic, Germany, Romania and Sweden are the only five FIEC member countries where overall construction investments increased between 2007 and 2009.

2.4.6 Research and development

Available data suggest that business expenditure on research and development (BERD) amounted to less than 0.5% of turnover in Onsite construction and Manufacturing of construction materials in 2007. As shown in Figure 2.23, the share was lowest in Onsite construction, barely breaching 0.05% of turnover, which nevertheless appears to be a significant increase over 2001 levels. Shares were somewhat higher in the various manufacturing sections encompassing Manufacturing of construction materials, especially in those parts involved in materials other than wood. However, common for all three manufacturing sections are negative changes in BERD compared to 2001 levels when measured as a share of turnover. In contrast, BERD approached almost 2% of turnover in Professional construction services in 2007, which would appear to be in line with the EU target for BERD for the economy as a whole of 2% of GDP by 2010 (note the limited data coverage, however). In all three subsectors, the share of turnover represented by BERD is significantly lower in the EU12 than in the EU15.

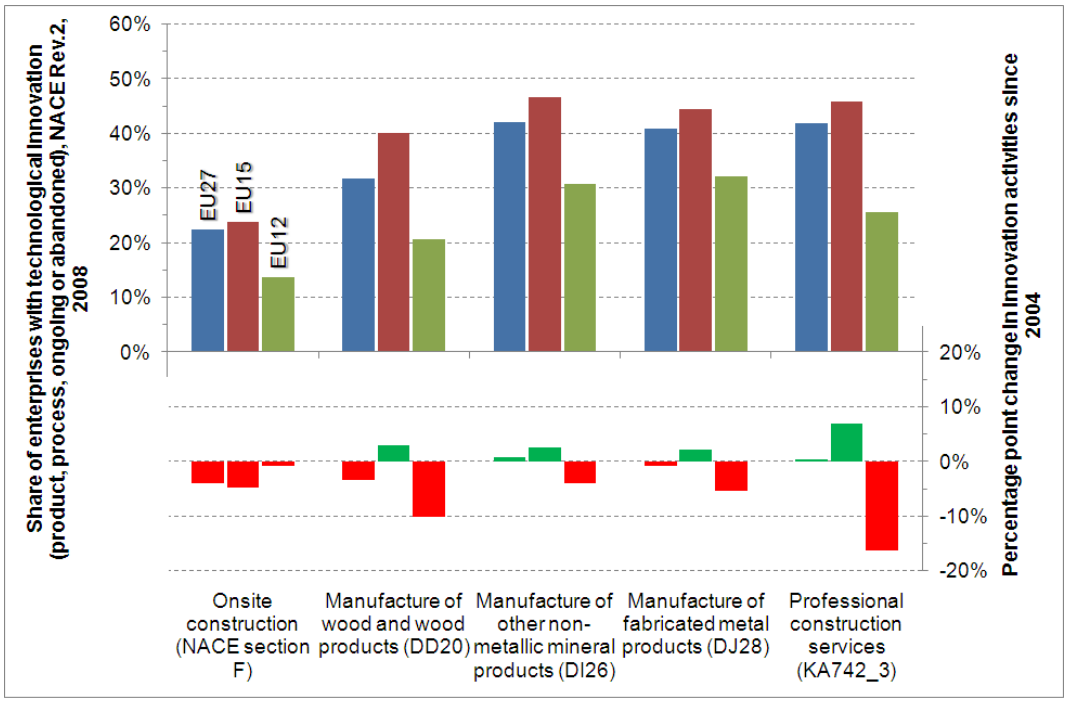
Figure 2.23: Business expenditures on research and development (BERD) as percentage of turnover across construction subsectors



Source: Eurostat Statistics on research and development (NACE Rev.1.1) and own calculations. 2007 values cover 15-22 Member States total and at least seven EU12 while percentage point changes cover 13-16 Member States total and at least six EU12, except for percentage point changes in Professional construction services which cover only eight Member States total and five EU12. In general no data available for France, Greece, Italy and Latvia and limited data available for Ireland, Lithuania, Luxembourg and Malta

A similar picture emerges when looking at innovation activities rather than expenditure on research and development. Figure 2.24 shows the share of enterprises in the most recent Community Innovation Survey from 2008, which introduced a technological innovation (a product or process innovation as opposed to an organisational or marketing innovation) during the previous two years. The figure shows that about 20% of enterprises in Onsite construction and 30-40% of enterprises in Manufacturing of construction materials introduced a new technological innovation with the highest innovation activity among enterprises involved in materials other than wood. Among enterprises in Professional construction services, the corresponding share was 42% in 2008. Furthermore, in terms of innovation activity there is a significant gap between enterprises in the EU15 and the EU12 in all three subsectors. Moreover, the innovation activity would appear to be decreasing compared to 2004 levels although this may simply reflect the initial impact of the financial crisis on enterprises involved in construction (note also the limited data coverage for 2004).

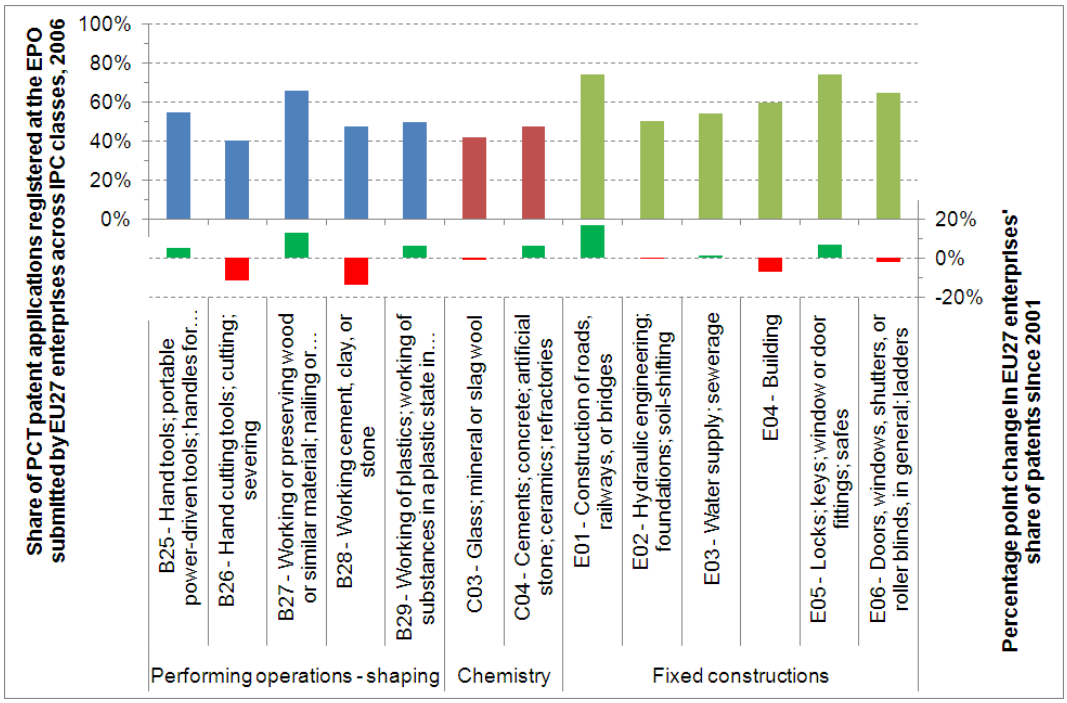
Figure 2.24: Innovation activities across construction subsectors



Source: Eurostat Community Innovation Survey (NACE Rev.1.1 and 2) and own calculations. 2008 values in Onsite construction cover 11 Member States total and five EU12 while percentage point changes in Onsite construction cover only six Member States total and three EU12

In terms of patent applications in relation to new processes and products, EU27 enterprises were responsible for more than half of all PCT/international applications registered at the European Patent Office in 2006 in every class of fixed constructions as well as in the classes concerning woodwork (B27) and hand and portable power-driven tools (B25). As shown in Figure 2.25, particular strongholds for European enterprises both in terms of shares in 2006 and in terms of growth in shares since 2001 would appear to be woodwork (B27), transport infrastructure (E01), and locks and hinges (E05). Weaker expertise for European enterprises, at least in terms of the number of PCT/international patent applications, would appear to be hand cutting tools (B26) and glass processing (C03). In addition, European enterprises would appear to be losing ground or meeting stronger competition in the areas of hand cutting tools (B26), cement, clay and stonework (B28), and building (E04). Consequently, while the number of PCT/international applications by EU27 enterprises has been increasing steadily since 2000, continued research and development and innovation efforts are necessary to keep up with the number of patent applications submitted by enterprises outside of the EU27 (not shown).

Figure 2.25: EU27 enterprises' share of patent applications at the EPO across IPC classes



Source: Eurostat Patent statistics. 'EPO' is short for 'European Patent Office' and 'PCT patent applications' is short for patents applications following the unified international procedure agreed in the 'Patent Cooperation Treaty'. 'IPC' is short 'International Patent Classification'

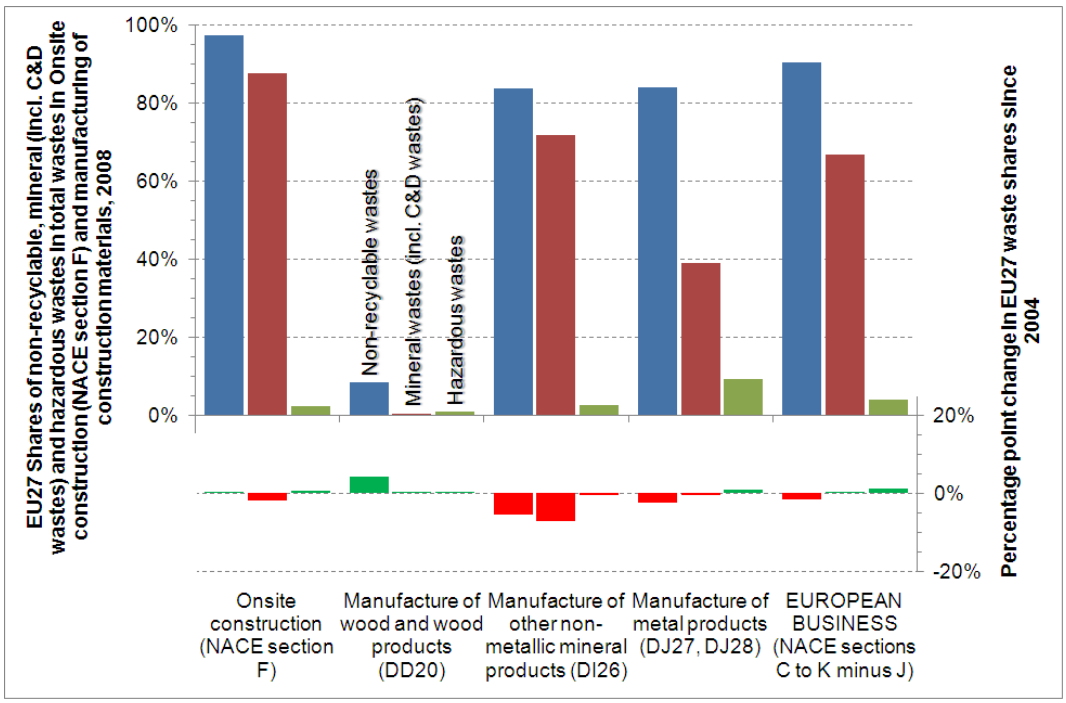
2.4.7 Environmental performance

Figure 2.26 shows that Onsite construction is characterised by the generation of large amounts of non-recyclable wastes,[15] primarily in the form of mineral wastes including concrete, bricks and gypsum debris, asphalt and asbestos. Part of the problem is the shift to using concrete as a major construction material due to its desirable building properties, since this material does not lend itself well to recycling when buildings and infrastructure come down as a result of demolition or renovation. In addition, the longevity of new buildings and infrastructure implies that any efforts started within the last decade towards development of materials that are easier to salvage and reuse will not show their full pay-off in the waste statistics until 20 or 30 years from now. Only in Greece, Romania and Slovenia do shares of non-recyclable wastes fall below 80%, which is probably due to higher reliance on more traditional construction materials and building methods. However, it should be noted that almost half of all mineral wastes generated across economic sectors in the EU27 in 2008 were actually re-used in some way or form (most intensively in the EU15), and while individual figures for the construction sector are not available, significant amounts of construction and demolition wastes currently are crushed and used as backfilling in new construction projects.

[15] The European waste classification for statistics identifies the following group of recyclable wastes: Metallic wastes, Glass wastes, Paper and cardboard wastes, Rubber wastes, Plastic wastes, Wood wastes and Textile wastes – characterised by being 100% recoverable for other purposes than energy production.

For similar reasons, Manufacturing of construction materials in general is also characterised by large amounts of non-recyclable wastes. In this subsector there are signs of a move towards a greener profile in recent years, especially in Manufacture of other non-metallic mineral products. The extremely low share of non-recyclable wastes in Manufacture of wood and wood products reasonably reflects the sector's ability to use even the tiniest bits of wood for one purpose or another. Hazardous waste poses a particular problem in Manufacture of metal products, possibly due to the difficulty of separating basic metal processing from the manufacture of metal products.

Figure 2.26: EU27 shares of non-recyclable and hazardous wastes in Onsite construction (NACE section F) and Manufacturing of construction materials

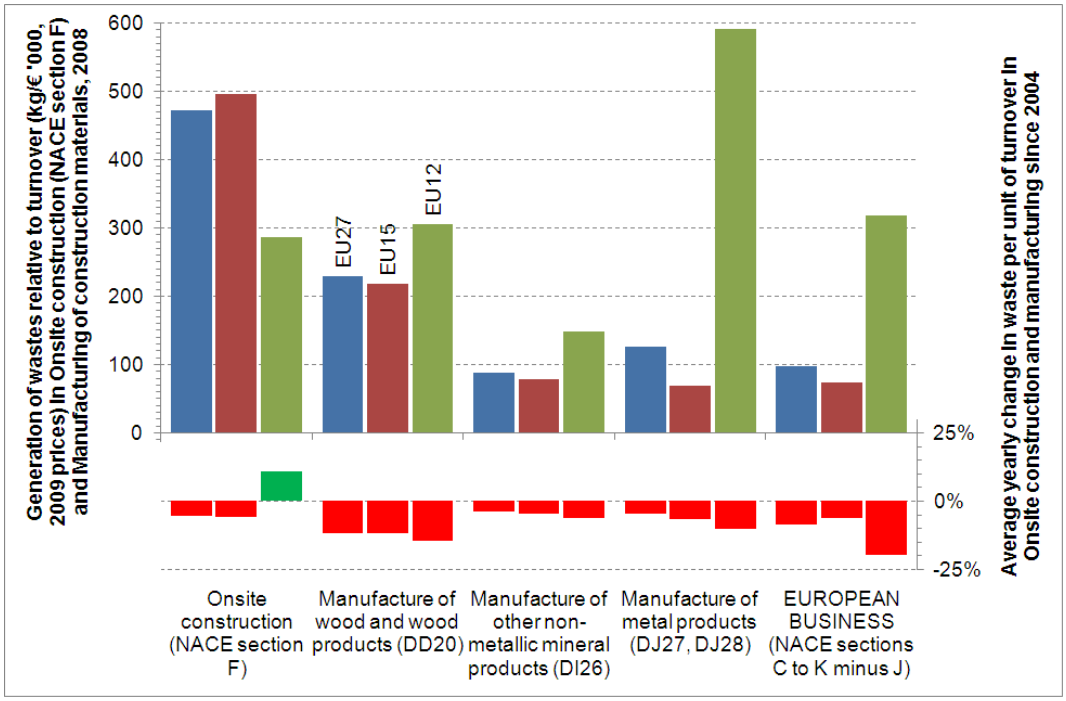


Source: Eurostat Waste statistics and own calculations. Mineral wastes include construction and demolition wastes (concrete, bricks and gypsum waste, hydrocarbonated road-surfacing material and mixed construction materials), asbestos wastes and various other mineral wastes, but not combustion wastes, contaminated soils or polluted dredging spoils

In terms of waste efficiency, i.e., the amount of waste generated per unit of production as measured by turnover, notable differences exist between the EU15 Member States and the EU12 Member States as shown in Figure 2.27. On the one hand, enterprises in Manufacturing of construction materials in the EU12 appear to generate significantly more waste relative to output than enterprises in Manufacturing of construction materials in the EU15. The most likely reason for these differences is differences in technology induced by higher labour costs (and/or stricter regulation) in the EU15. However, the composition of enterprises within each division may also explain part of the difference, not least in relation to Manufacture of metal products where the very high waste production relative to output may reflect the location of many basic metal working plants in Eastern Europe. On the other hand, enterprises in Onsite construction in the EU12 appear to generate significantly less waste relative to their output than enterprises in Onsite construction in the EU15. It is more difficult to identify likely reasons for this

difference, and the decreases in waste efficiency among enterprises in Onsite construction in the EU12, and among these enterprises only, tentatively suggest that different accounting practices for this subsector are the root cause of this discrepancy.

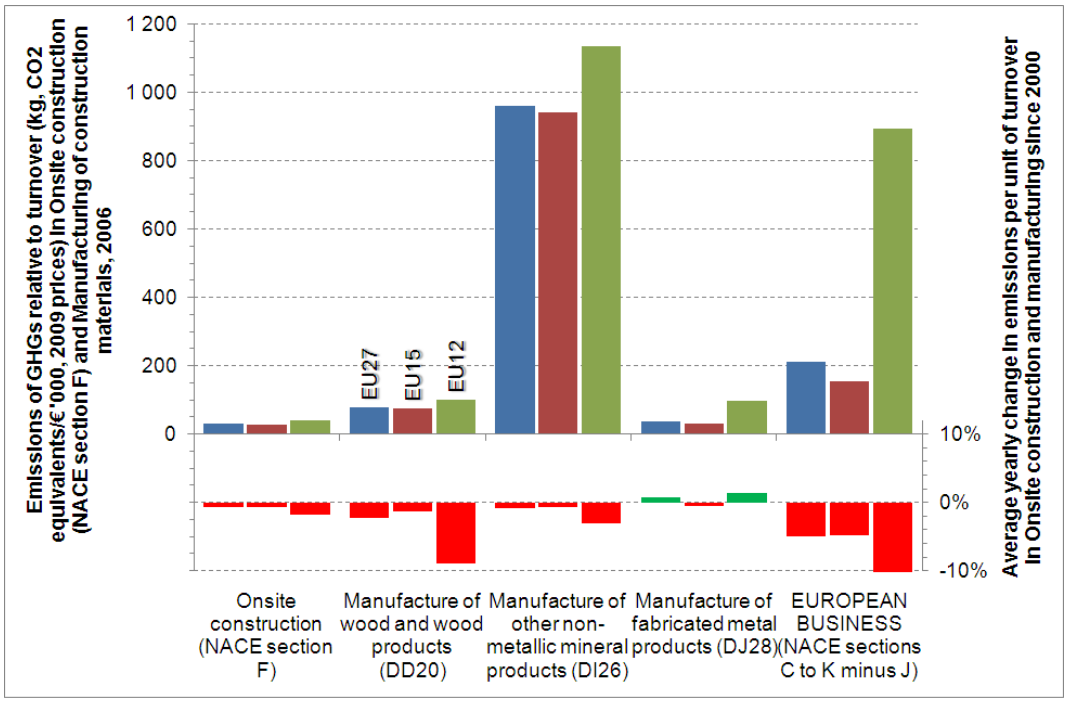
Figure 2.27: Waste efficiency in Onsite construction (NACE section F) and Manufacturing of construction materials



Source: Eurostat Waste statistics and own calculations

Another concern besides resource use is the contribution of the construction sector to global warming through emissions of greenhouse gases (GHGs). Figure 2.28 shows emissions of carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) per unit of production as measured by turnover in 2006. The figure shows that the process of production in Onsite construction itself does not emit significant amounts of GHGs relative to output if compared to emission levels in other parts of the economy. Relative emissions of GHGs were somewhat higher in Manufacturing of construction materials because of the energy consumption required to operate machinery. This is especially true in the Manufacture of other non-metallic mineral products where substantial amounts of heat are necessary to bake bricks and tiles as well as melt, shape, and harden glass and ceramics. In both subsectors there are signs of efforts to reduce GHG emissions per unit of production whether the result of deliberate action or caused by unsolicited energy efficiency improvements in the tools and machinery utilised.

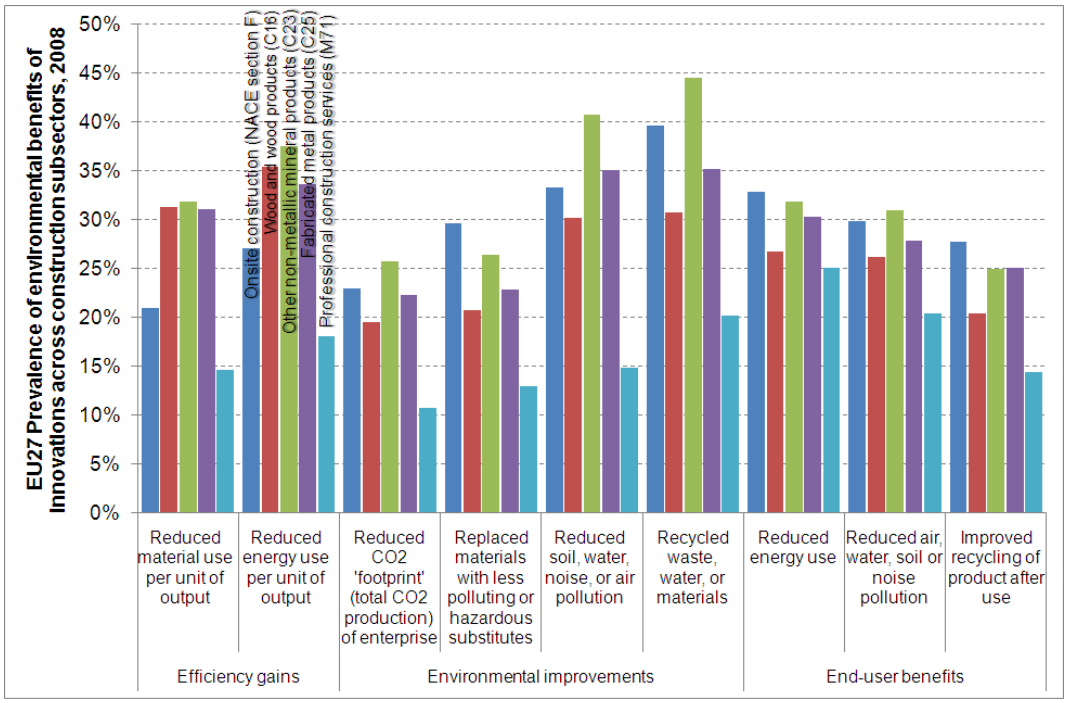
Figure 2.28: GHG emissions efficiency in Onsite construction (NACE section F) and Manufacturing of construction materials



Source: Eurostat Air emissions accounts and own calculations. 'GHGs' short for 'Greenhouse gases' including for present purposes carbon dioxide (CO_2), methane (CH_4, equal to 25 CO_2 equivalents) and nitrous oxide (N_2O, equal to 298 CO_2 equivalents)

However, a new eco-module to the Community Innovation Survey in 2008 suggests that the efficiency gains in GHG emissions observed in Figure 2.28 might well be the result of deliberate efforts to save energy. Figure 2.29 shows that between a third and a fourth of construction enterprises introducing an innovation in the two years prior to the survey have experienced reduced energy use per unit of output. This ranks among the three most prevalent environmental benefits overall together with recycled waste, water or materials and reduced soil, water, noise or air pollution. Arguably, there is also clear correlation between the reductions in shares of non-recyclable waste in the Manufacture of other non-metallic mineral products evidenced in Figure 2.26 and the high proportion of innovative enterprises within this economic activity that have experienced recycled waste, water or materials as a result of their innovation activities. Unlike in the other two subsectors, end-user benefits tend to be the most prevalent environmental benefits of innovations introduced by enterprises in Professional construction services. However, improved recycling of products after use ranks notably lower than reduced energy use and reduced air, water, soil or noise pollution suggesting that the dissemination and acceptance of lifecycle costing models at the design stage can still be improved (note the limited data coverage in some subsectors explained in the comments to figure).

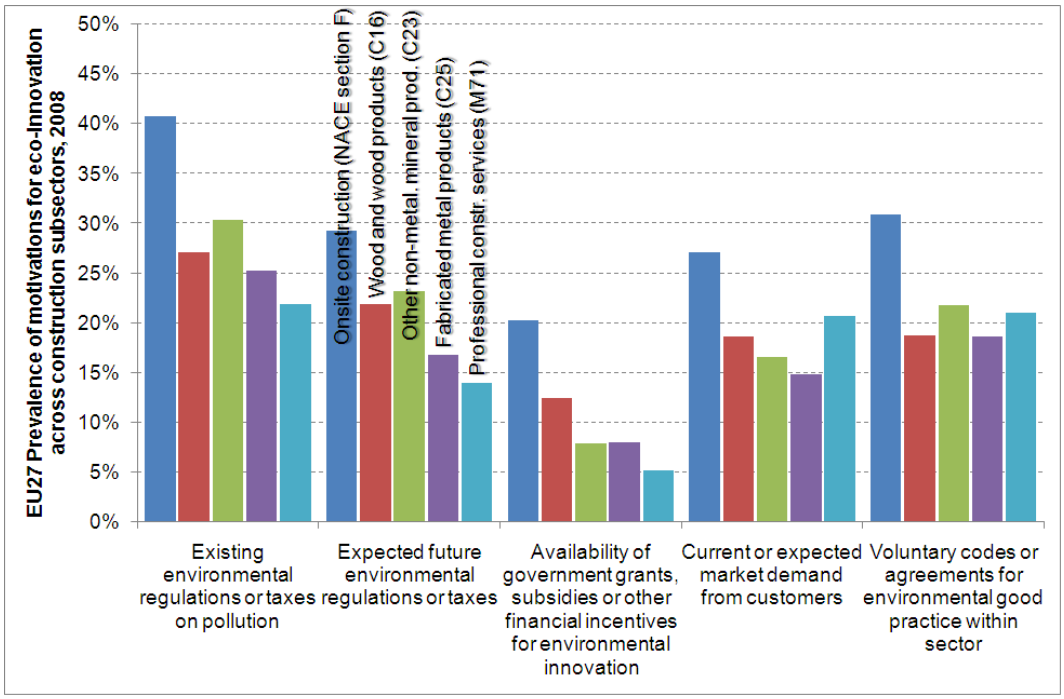
Figure 2.29: Environmental benefits of innovation activities across construction subsectors, 2008



Source: Eurostat Community Innovation Survey (NACE Rev.2) and own calculations. Onsite construction covers seven Member States only and Professional construction services covers 12-15 Member States. Manufacturing divisions cover 18-20 Member States. In general no data available for Denmark, Greece, Malta, the Netherlands, Slovenia, Spain and the United Kingdom

The eco-module to the 2008 edition of the Community Innovation Survey also provides some evidence regarding the motivations for the introduction of eco-innovations. These results suggest that the primary motivation for the introduction of eco-innovations in all subsectors of construction is existing environmental regulations or taxes on pollution. Voluntary sector codes or agreements as well as expected future legislation and market demands appear to play only a secondary role as shown in Figure 2.30. Moreover, the availability of government grants, subsidies or other financial incentives for environmental innovations is by far the least common motivational factor.

Figure 2.30: Environmental benefits of innovation activities across construction subsectors, 2008



Source: Eurostat Community Innovation Survey (NACE Rev.2) and own calculations. Onsite construction covers 6-7 Member States only and Professional construction services covers 11-13 Member States. Manufacturing divisions cover 17-19 Member States. In general no data available for Austria, Denmark, Greece, Malta, the Netherlands, Slovenia, Spain and the United Kingdom

2.5 Conclusions

Importance of the sector

The construction sector is important for the European and global economy. Directly the overall sector accounted for 15% of all persons employed in European industry and business (NACE sections C to K minus J) in 2007 while generating 10% of turnover and 15% of value added.

Onsite construction consumed € 750bn of intermediate products from other sectors in 2007, corresponding to roughly 44% of the subsector's turnover. In addition, Real estate services consumed almost € 220bn of intermediate products and services from other sectors not including Onsite construction.

Performance of the sector 2000-2007

The development from 2000 to 2007 in Onsite construction relative to 2000 in constant prices show a steady increase in the number of enterprises (4% annually) and the number of persons employed (3% annually).

Manufacturing of construction materials saw increases in the number of enterprises and number of persons employed from 2000 to 2007 that were somewhat lower than for Onsite construction (about 1% annually).

Professional construction services showed the most marked increases in the number of enterprises (5% annually) and number of persons employed (4% annually) across the three subsectors.

For most of the period from 2000 to 2007 both turnover and value-added in Onsite construction grew more slowly or at least not faster in constant prices than the number of persons employed (1-2% annually). Increasing personnel costs compared to changes in value added since 2005 (4% annually), and the concomitant steadying of average personnel costs, significantly reduced growth in wage adjusted labour productivity in 2006 and 2007.

Turnover and value-added for manufacturing of construction materials generally grew faster or at least as fast in constant prices as the number of persons employed (2-3% annually). Professional construction services turnover and value added in constant prices increased faster than in either of the other two subsectors albeit roughly at the same pace as the number of persons employed (3-4% annually).

Output in all three subsectors grew comparatively faster in the EU12 between 2000 and 2007 albeit from low nominal levels (5-11 percentage point swing in annual growth rates). In relative terms, such as turnover and value added per person employed, the EU15 Onsite Construction recorded negative average growth rates while the EU12 experienced significant positive growth. For Manufacturing of construction materials, the EU15 recorded only slightly positive output growth rates while the EU12 experienced significant positive growth. For Professional construction services, average employment growth has been higher in the EU15 than in the EU12.

Performance of the sector since 2007

The onset of the financial crisis in 2007 has had a significant impact on activities in Onsite construction. The crisis led to sharp drops in production volume and new orders during 2007 followed by corresponding drops in the number of persons employed, gross wages, and salaries during 2008. Since then, the EU27 has experienced a string of consecutive quarters with negative changes only appearing to slowly turn in 2010/2011 based on available data from Eurostat (and not for all countries). Countries with the highest decreases in construction activities since 2007 are especially those that had the highest growth rates up to 2007.

The crisis has primarily affected the market for buildings (average quarterly change of -2% from Q1 2008 to Q1 2010), while activity in the market for civil engineering has remained fairly constant after 2007 in terms of production volume (average quarterly change of 0% over the same period). After 2010, a slight revival in total construction output is projected, but the 2006 level will not be reached until 2013 according to Euroconstruct data.

Similarly, Manufacturing of construction materials has seen dramatic drops in production volume and turnover from early 2007 onwards as well as in the number of persons employed, gross wages, and salaries after early 2008.
Professional construction services were also affected by the financial crisis. A sustained period of positive growth in turnover levels was followed by negative changes from early

2008 onwards. This drop coincides with the most significant decreases in activity in both Onsite construction and Manufacturing of construction materials. The severity of the impact appears to have been the least severe in Professional construction services compared to the other two subsectors.

Trading of construction materials

In 2007, the distribution channels of manufactured construction products consisted of approximately 190,000 wholesale enterprises in the EU27 employing almost 1.5 million persons and generating a € 462bn of turnover. The most substantial subdivisions are wholesale of wood, construction materials and heating equipment and wholesale of hardware, plumbing and heating equipment and supplies accounting for 55-60% and 30% respectively of all persons employed and turnover and value added generated within this auxiliary sector. This subsector was also severely affected by the financial crisis and lack of demand from construction. Developments in each of the three broader categories of wholesale all indicate significant drops in turnover starting in early 2008.

Real estate services

Real estate services show even greater increases in the number of enterprises (10% annually) and number of persons employed (6% annually) than in Professional construction services. The gap between enterprise growth and employment growth implies that much of the growth has happened through the creation of numerous very small enterprises as also reflected in the continuous decreases in average enterprise size for most of the period.

The financial crisis has affected Real estate services at least as negatively as the overall construction sector given the reliance of most activities in Real estate services on the prospect of increasing prices in the various housing markets for residential and non-residential buildings.

Mergers, acquisitions and market concentration

Consistent with the important role of SMEs (99.9% of all enterprises), and in particular micro enterprises (92%), in Onsite construction employment and output market concentration in the subsector is relatively low. On average, the four largest enterprises accounted for no more than a third of total turnover in 2008. In contrast, the four largest companies in Manufacturing of construction materials on average accounted for more than half of the total turnover in 2008 implying considerable individual power to control the selling price of construction materials. The financial crisis had a significant impact on the number of M&A deals in the sector. After year on year increases, peaks were reached for Manufacturing of construction materials in 2005-2006 and Onsite construction in 2007 after which the number of deals have decreased.

Skills and Education

Most of the employees in Onsite construction have at least an upper secondary education. There is a significant difference between the EU15 (61%) and EU12 (84%) averages. This in part reflects differences in the makeup of mandatory educational systems. Mainly in the Southern European countries more than 60% of employees in Onsite construction have just a primary or lower secondary educational background. Over time, the EU27

shares of employees in Onsite construction with an upper and post-secondary non-tertiary education or a tertiary education have increased although at low annual rates.

ICT usage

On the one hand, the share of enterprises in Onsite construction in the EU27 with (fixed) broadband access to the internet has increased rapidly from below 40% in 2004 to nearly 80% of all enterprises with at least ten persons employed in 2009. On the other hand, the introduction of software to manage orders and purchases and/or exchange information directly with suppliers and customers has increased more slowly. Only about a third of all Onsite construction enterprises with at least ten persons employed utilised ICT in 2009 to integrate internal business processes and barely one in ten utilised ICT to integrate external business processes.

Investments

The value of investments amounted to 12% of value added in Onsite construction in the EU27 in 2007. The overall investment levels in Onsite construction, and especially in residential and non-residential buildings, have fallen since 2007.

Research and Development

Business expenditures on research and development (BERD) amounted to less than 0.5% of turnover in Onsite construction and Manufacturing of construction materials in 2007. The share was lowest in Onsite construction and reached 0.05% of turnover in 2007, which appears to be a significant increase compared to 2001 levels. Shares were somewhat higher in the various sections of Manufacturing of construction materials but with decreases from 2001-2007. BERD approached almost 2% of turnover in Professional construction services in 2007.

In the most recent Community Innovation Survey from 2008, the share of enterprises that introduced a technological innovation during the previous two years was 20% of enterprises in Onsite construction, 30-40% of enterprises in Manufacturing of construction materials and 42% of enterprises in Professional construction services.

EU27 enterprises were responsible for more than half of all PCT/international patent applications for new processes and products registered at the European Patent Office in 2006.

Environmental performance of the sector

Onsite construction and manufacturing of construction materials are characterised by the generation of large amounts of non-recyclable wastes. Efforts started within the last decade towards development of materials that are easier to salvage and reuse will not show their full pay-off in the waste statistics until 20 or 30 years from now.

In terms of waste efficiency (amount of wastes generated per unit of production) enterprises in Manufacturing of construction materials in the EU12 appear to generate significantly more waste relative to their output than enterprises in the EU15 possibly due to differences in technology use induced by higher labour costs in the EU15.

3. Competitive position of the sector

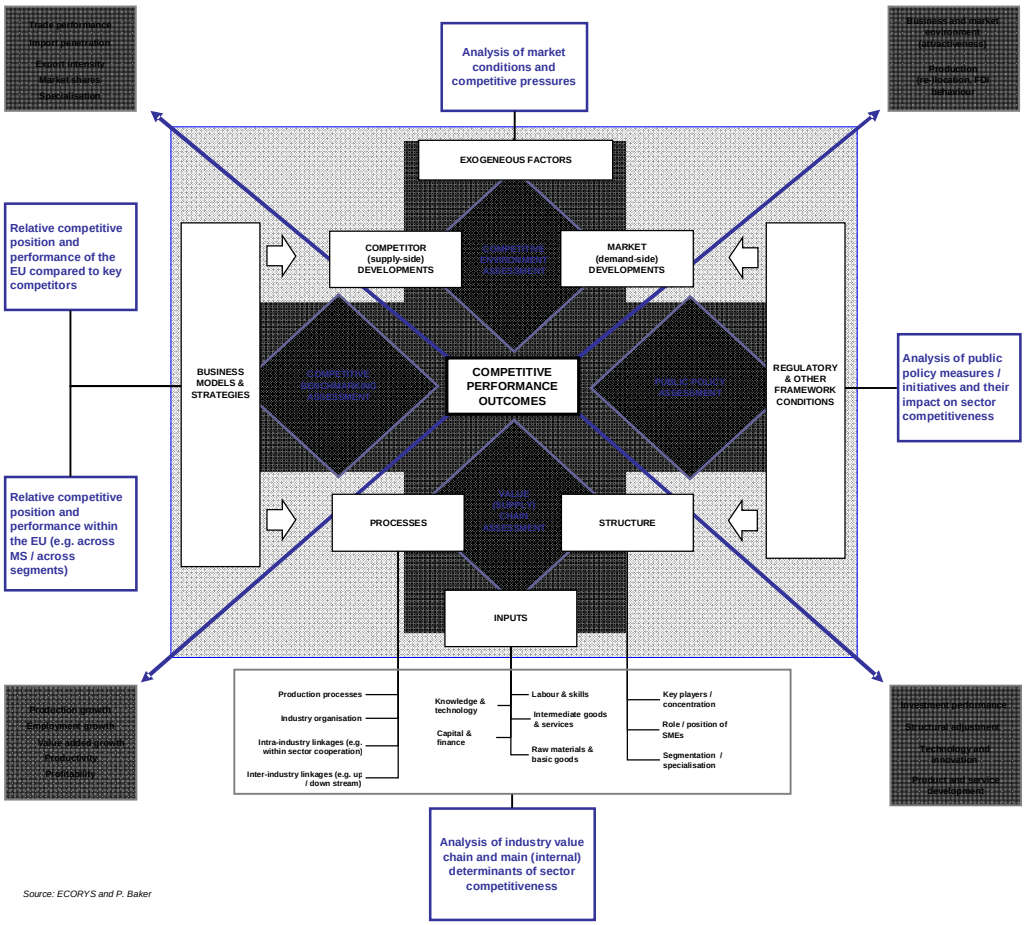
Whereas Chapter 2 presented and described the performance and the key characteristics of the construction sector and its subsectors, this chapter presents the results of the analysis of the competitiveness of the construction sector and its three main subsectors: Onsite construction, Manufacturing of construction materials, and Professional construction services. The chapter seeks to identify explanations and patterns for the performance of the sector based on an extensive literature review, interviews with companies and sector representatives and the various case studies carried out.

Although this analysis of the competitive situation of the construction sector will focus on the tree main subsectors, the importance of other parts of the supply chain should not be overlooked. In the final section of the chapter, we will explore in more detail the role and importance of the Real estate services sector.

3.1 Overall approach and definition

The global competitiveness of a sector is determined by a wide range of socio-economic, organisational, cultural and technological factors, which have been identified and analysed in numerous academic and sector studies. The figure below provides an overview of the key factors and drivers affecting the global competitiveness of the construction sector:

Figure 3.1: Analytical model



Source: ECORYS and P. Baker

This analytical framework constitutes the starting point of the analyses of the individual subsectors of the construction sector in Europe.

The mapping of competitiveness issues for the three main subsectors has been structured around the four key elements of the analytical framework:

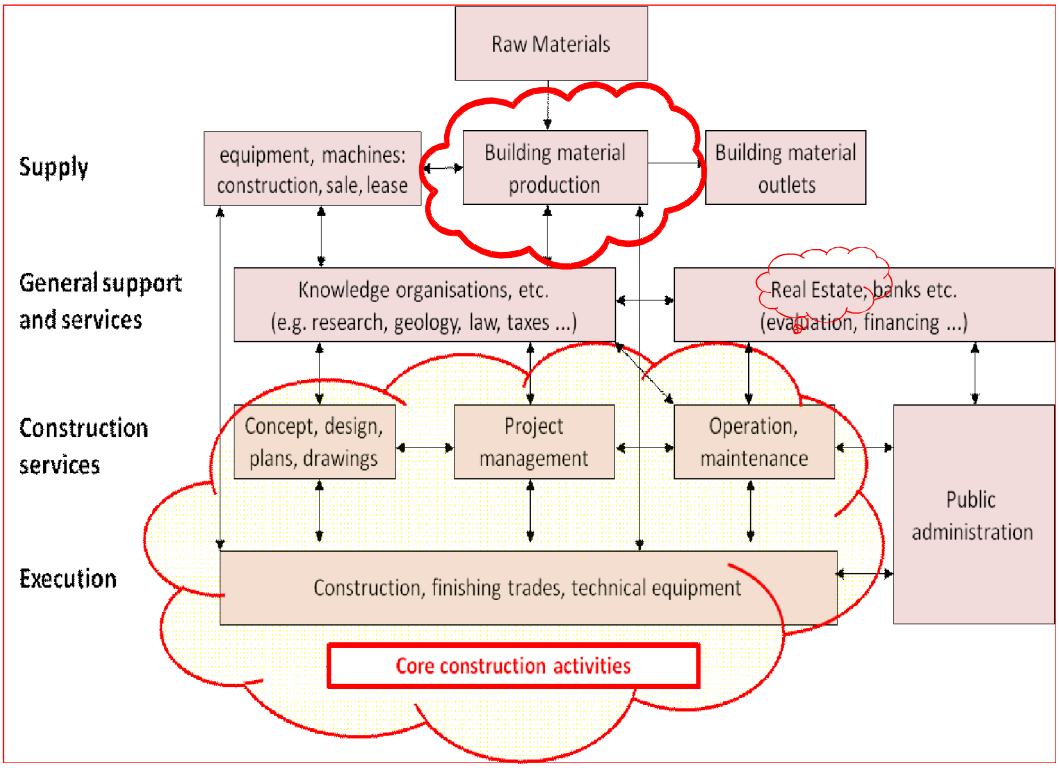
- Market conditions and competitive pressures;
- Relative competitive position and performance;
- Industry value chain and internal determinants; and
- Public policy measures and initiatives.

The last element covering public policy and initiatives is covered in Chapter 4: Framework conditions affecting competitiveness.

3.2 The value chain of the construction sector

The construction sector is characterised by a complex value chain. It includes both basic manufacturing and supply of construction materials and a range of knowledge-intensive services provided by private enterprises and public knowledge organisations. An illustration of the construction sector value chain is provided below:

Figure 3.2: The value chain



Some of the large actors in the different subsectors currently operate across European borders and even in international markets (e.g., architects and engineering companies), while other actors in the value chain mainly operate in national or local markets. As a result, the different actors face very different challenges with regard to competitiveness and innovation.

Table 3.1 below illustrates how the companies within the three main subsectors operate. It describes their main clients, the scope and type of markets in which they operate, the typical working relationships with their clients, and how they have reacted to changes in the construction market:

Table 3.1: Clients and markets of the different subsectors

	Onsite construction	Manufacturing of construction materials	Professional construction services
Clients	• Building owners, utilities, other businesses, private developers and public sector authorities at local, regional and primarily all domestic sales • Main contractors (as subcontractors)	• Mainly contractors in charge of construction projects • Subcontractors • Mainly national clients, although markets are becoming increasingly international	• Private developers and public sector bodies at national, regional and local level • Private house owners or house developers • Contractors in charge of construction projects

	Onsite construction	Manufacturing of construction materials	Professional construction services
Markets	• Primarily national, regional and local markets • Large enterprises increasingly embrace international activities • Residential housing, commercial buildings, maintenance and renovation, infrastructure.	• Internationally, nationally and locally oriented depending on product type. • Increasing focus on emerging markets outside the EU • DIY, building material wholesalers, architects, engineers, housing associations.	• Primarily national and regional markets • Some international orientation – particularly from large engineering service enterprises and smaller niche providers • Private housing (architects), public and commercial buildings (architects, engineers), infrastructure (engineers), facility services.
Working relationships with clients	• More contractors are trying to incorporate more activities (service, project managing etc.) • Major companies have closer relationship with clients and participate in project development • Often sub-contracting and late payments is therefore an issue	• Some have close relationship with architects – development of new materials in cooperation with architects and developers • Suppliers of products and components and especially wholesalers have many of the small companies as clients and insolvencies and late payments are current issues	• Interact with clients in many different ways depending on type of company and roles (project management, advisor, specialist, etc.). • Often directly involved in early stages with clients • Engineering consultancies or independent project managers often lead the process from conception to completion
Reactions to recent changes in market	• Specialisation (energy efficiency, intelligent buildings, etc.) • Focusing on more buoyant markets (refurbishment, public sector infrastructure, etc.) • New forms of partnerships (e.g. with utilities or product suppliers) • Delaying if not stopping projects • Measures to reduce costs • Downsizing – reducing staff levels dramatically	• Increasing focus on emerging markets (e.g. with large public investments in infrastructure, commercial building and public housing) • Focus on new high value markets (sustainable materials, intelligent materials, automation) • Measures to reduce costs • Closing down plants with excess capacity or ineffective plants	• Mergers and acquisitions • Increased focus on efficiency (ICT) and risk management • Specialisation • Diversification into new service areas where profit margins are higher. Offering more than one service to minimise risk. • Technology and innovation • Expansion into international markets • Closing down units with excess capacity

3.3 Subsector – Onsite construction

Onsite construction includes all aspects of construction activities from site preparation to building completion and renting of construction materials.

3.3.1 Market conditions and competitive pressures

Very broadly described, the main driver of Onsite construction activities is the demand for private and public housing and non-residential buildings, renovation and maintenance of buildings and infrastructure investments. The economic growth that characterised the period up to 2008 created a boom in Onsite construction activities, which has since decreased significantly due to the recession. Public sector investments have become increasingly important for the growth and survival of many construction companies following the financial crisis, and national anti-crisis measures and budget allocations directed at Onsite construction are one of the key drivers of Onsite construction activities today.

Impact of the financial crisis

The major issue for Onsite construction is the current recession, which has hit the construction companies extremely hard. Many large-scale public and private construction projects have been stopped or postponed, and the number of new construction projects has decreased, often dramatically. This is not only a situation affecting the European construction companies, but also their competitors around the world, yet impacts and responses differ.

In Europe, the impact of the economic crisis on the construction sector has varied between two groups of countries (EFBWW-FIEC, 2009):

1. The first group are the countries that experienced a speculative real estate bubble in the pre-recession period combined with high levels of household debt. These countries have been severely hit by the recession and include Ireland, the United Kingdom, Spain and Portugal. Construction activity has also dropped dramatically for many months in some Central and Eastern European countries such as Hungary, Romania and the Baltic States, and there is still no end in sight to the crisis.
2. The second group are the countries that were not in a real estate and housing bubble in 2007. Initially, only the financial sector was hit by the crisis, then, in a second wave, export industries, and eventually domestic markets, including the building industry. In those countries, building activity is therefore declining more slowly because of the general economic crisis and the related cuts in investment. A few countries, such as Germany, Austria, Sweden and Switzerland, expect to see stagnation or only a small decline in construction activity up to 2010.

Some of the explanation for the relatively positive performance can be found in very large government infrastructure investments started prior to the recession, as has been the case in Sweden (see Box 3.1 below).

Box 3.1: The case of Sweden
According to the Swedish Construction Federation (BI), the Swedish construction sector has been less exposed to the crisis than construction sectors in other countries. According to BI this is due to a public investment programme (närtidssatsning) launched in 2008 (before the crisis) aimed at improving the national infrastructure (rail and roads). The programme will continue until the end of 2010. In the short to medium term, the level of private investments in the construction sector is expected to stabilise, and increasing the private investments in the sector is a major challenge for the sector in the years to come. In particular, since the government's follow-up programme to the infrastructure investment programme does not currently include any commitments towards continuing the high level of public investments.

Source: Interview with Frederik Isaksson, senior economist for the Swedish Construction Federation (BI).

The duration of the economic crisis and the effectiveness of public policies and anti-crisis measures will be the main determinants of the future recovery of the economy as a whole, but also very much the construction sector.

Anti-crisis measures - focus on Onsite construction

The Onsite construction markets have been heavily influenced by the different types of national anti-crisis measures launched by EU Member States to counter the macro-economic impact of the financial crisis. One of the major anti-crisis measures is the national stimulus packages, which have ranged from increasing public investment in construction projects to stimulating other parts of the national economy. There is consensus that infrastructure policies will boost the economy not only in the long run but also in the short run, given low levels of aggregate demand. It is therefore no surprise that infrastructure investments have been the most popular choice of European governments. In at least two out of three Member States, this has been the most important area of spending[16].

Well-designed infrastructure spending has been shown to have a substantial impact on the economy as a whole (multiplier effect) and it is also a way for governments, even in small countries, to keep a large part of the fiscal boost within the domestic economy. An important downside of such measures is that in many cases they require substantial time lags before they can be implemented. However, countries such as the Netherlands have taken steps to reduce this time lag.

Box 3.2: The case of Netherlands – Crisis and Recovery Act
Because of the worldwide financial crisis and its impact on the development of construction businesses in the Netherlands, the Dutch government invoked the Crisis and Recovery Act. Because of the crisis the number of construction projects dropped by 30% from February 2008 to February 2009. The Economic Institute of Construction has estimated that up to 2011 at least 40,000 out of 400,000 jobs will be lost in the Dutch construction sector. The Crisis and Recovery Act came into effect on 31 March 2010. It aims to speed up projects in the spatial domain, to reduce the effect of the economic crisis and its consequences and to stimulate a good and sustainable recovery of the economy in the Netherlands. In this way, the Act is also intended to stimulate employment. The proposal introduces measures that limit the right of appeal and objection to planned constructions, provides better opportunities to combine new developments with measures to reduce environmental impact and allows that legal limits be set aside for temporary innovative experiments. Furthermore, a number of schemes have been introduced under the Act to make investments in energy efficiency temporarily very attractive (e.g. VAT reduction). Already, the Act has led to five large-scale projects and several small projects are being accelerated through the system. However, it remains to be seen whether the Act will in fact have the expected impact on the sector and to what extent it will result in any adverse effects on the environment.

[16] National reports produced by Consortium and presented as annex 1 of Progress report (March-April 2010)

The European Federation of Building and Woodworkers (EFBWW) and the European Construction Industry Federation (FIEC) commented on fact that the amount of spending pledged in Europe lags far behind similar programmes in the United States and China. While the United States are setting aside about 6% of its GDP and China about 18% for such programmes, in Europe only an average of about 1% among EU countries was earmarked in 2009.[17] Furthermore, according to the KPMG Global Construction Survey 2010[18] the stimulus packages have had little or no tangible impact in many parts of the world. The exception is Asia Pacific, where "China and Hong Kong have benefited considerably from some major infrastructure projects". The survey respondents are also highly sceptical about the future growth prospects in the Americas, Europe, the Middle East and Africa, not least due to concerns over imminent cuts to reduce the large public borrowing, bureaucratic red tape and a lack of momentum for existing efforts.[19]

There is also a sharp distinction between developed countries and emerging markets in terms of likely government budgetary policies, which will have major implications for global construction activity. Fiscal deficits, as seen in many EU Member States, will constrain government spending for many years. As a result, it is unlikely that the recent burst of infrastructure spending in developed countries will continue beyond the initial stimulus programmes. In contrast, a number of major emerging markets do not face such severe budgetary constraints.

The ability of the public sector in these markets to invest and the strains placed on existing infrastructure by rapid economic growth mean that major infrastructure projects are likely to be concentrated in emerging markets.[20] Nevertheless, an increased focus on long-term performance instead of short-term capacity building of infrastructure in Europe may create opportunities for private investment in public infrastructure projects.

The relative importance of other measures varies. Some countries have targeted businesses, offering either sector-specific measures in support of threatened industries or (as on the revenue side) incentives to invest, including in green technology. The sector support has been heavily concentrated on construction and manufacturing. In some cases, VAT reductions have been targeted directly at the construction sector, such as in Belgium and France.

Investment in climate adaptable solutions

The climate change challenge is of high political importance and a major driver for construction companies. Construction companies will play an important role in reducing greenhouse gas emissions and meeting water and sewage challenges. As the national literature reviews show, many initiatives across Europe are based on low carbon and energy efficient construction. Many public initiatives (investments) and regulations are also directed at meeting demands for sustainable construction.

[17] Andrew Watt: „A quantum of solace? ", ETUC working paper 2009-05. It is unclear however in these figures for all three countries/region, what constitutes stimulus packages, public investments brought forward and what constitutes public investments that have been labelled slightly differently

[18] KPMG International (2010): Adapting to an uncertain environment. Global construction survey 2010

[19] KPMG International (2010): Adapting to an uncertain environment. Global construction survey 2010

[20] http://www.joinricsineurope.eu/uploads/files/RICSGlobalConstructionForecast2020.pdf

On the one hand, the conducted interviews reveal that companies consider the demand for sustainable construction as an important business opportunity. On the other hand, the companies participating in the KPMG Global Construction Survey 2009 (KPMG, 2009) indicate that a sustainable approach may not win the companies any new business outright, but a lack of it can jeopardise their chances. In other words, in the future, companies need to have a sustainable approach and solution to stay competitive. Sustainable solutions will be the norm of the future.

Competitive pressures in Onsite construction

The financial crisis has substantially changed the competitive landscape in the Onsite construction subsector. However, the competitive picture differs from subsector to subsector. The civil engineering subsector is currently experiencing increased international competition and the formation of large consortia to bid for large projects in relation to road building, railway projects, bridge and tunnel projects, etc. Residential buildings remain a subsector with limited European competition. This is because each country, and often different regions in each country, still have their own way of building residential buildings. These traditions are linked to historic access to building materials and the climate in the regions. The European competition in the non-residential building subsector is also not extensive. Again, local culture and approaches have a significant impact on how and with what materials buildings are constructed.

3.3.2 Relative competitive position and performance

Production has declined dramatically since start of financial crisis

Overall, the decrease in production continues to dominate the picture in the construction sector. The latest figures from Eurostat show that construction sector production dropped by 0.4% in the Euro Area in August 2010 compared to the previous month. In EU27, production rose by 0.3 % in August 2010 compared to July 2010. The annual comparison shows that between August 2009 and August 2010 output dropped by 8.5% in the Euro Area and by 1.3% in the EU27[21].

According to the report "Global Construction 2020" by Oxford Economics and Global Construction Perspectives (2009), by 2020 the construction output is estimated to have grown by 70% and will account for 14.6% of world output (compared to 13.4% in 2009) with some of the large emerging markets, such as China, India, Russia, Brazil and Poland along with the US, driving growth.

Contractors from Asia are more optimistic about the future growth prospects in their region than contractors in other global regions. Moreover, the competitive situation and limited growth prospects in the Americas and Europe are driving construction companies to focus on the Middle East, Asia, Australia, Africa and India (KPMG International, 2010)

[21] Eurostat Newsrelease: http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/4-19102010-AP/EN/4-19102010-AP-EN.PDF

Profitability

The KPMG Global Construction Survey 2009 showed that in 2009 “only” 44% had experienced a decrease in projected earnings, where the companies from Europe, Middle East and Africa appeared to have been the hardest hit. When the companies were asked about the future (2010), 64% were confident that their profits would either increase or remain the same. However, the results of the KPMG Global Construction Survey 2010 show that margins continue to take a beating, although cushioned to some extent by lower overhead costs (ibid.).

In a 10-year perspective access to labour is still an issue

The KPMG Global Construction Survey 2009 shows that although the economic recession has temporarily eased, skills shortages in the sector, i.e. access to qualified labour, is still an issue. The survey of 108 companies showed that the companies are keeping their employees, but on reduced salaries and working hours to stay competitive. It also shows that the companies are less likely to invest in training to upgrade skills, even though investment in talent is a key issue for the European companies and a major theme for the sector organisations.

3.3.3 Industry value chain and internal determinants

Value chain and client relations

Improving the position with the client – from supplier to partner – is a major value chain issue, In particular, contracting agreements such as Public-Private-Partnership (PPP) and other forms of partnerships involving clients and the supply chain can help ensure environmental, social and economic benefits for both client and contractor. Through the application of best practices, the industry and its clients can collectively act to improve their performance and meet high-level policy objectives of sustainability and competitiveness. One example is the 2012 Construction Commitments (Strategic Forum for Construction, 2006) in the UK. The "2012 Construction Commitments" covers six key areas of the construction process and is designed to enhance sustainability and competitiveness through promoting collaborative working and best practice, ensuring the successful delivery of the 2012 London Olympic Games infrastructure, buildings and subsequent legacy.

The professionalisation of clients is a key issue in the building and construction industry as this may strengthen working relations, help reduce failure costs and drive innovation in the construction sector. Likewise, the efficiency of public procurement processes can be enhanced by ensuring that the contracting authorities are sufficiently trained and competent to deal with such processes.

Technology and innovation

Investment in new technology and innovation is potentially a major driver for increasing the competitiveness of European construction companies, not least by increasing productivity by using ICT, innovative building products and new construction methods. Such investments are crucial in meeting societal challenges such as economic growth, climate change and changing demographics.

In relation to the increased focus on climate change, the market for eco-efficient buildings, which is populated by a huge variety of concepts, will be a major area for construction companies to invest in technology and innovation. The eco-efficiency of a building is defined as the ratio of the building performance and conformity to the environmental pressures induced by the technical solution that fulfils the client's requirements. These requirements cover both the performance of the building and its conformity in terms of location, spaces and services (Häkkinen et. al, 2006).

In the construction stage this could include new ways to design buildings composed of materials with low embodied energy (low energy for transportation, low energy for manufacturing and building products etc.) or design buildings with low service frequency (i.e. high level of physical durability, easy maintenance of buildings, physically adaptable to change of use).

To different degrees, the above concepts also refer to the minimisation of waste, basically in the construction phase and in the demolition phase. This will also result in cost reductions and thereby a competitive advantage. In the construction phase as well as in the demolition phase, this means the reduction of the quantity of materials used in the construction of buildings and the recycling and reuse of surplus materials. However, minimisation of waste is also achieved through characteristics like a high level of physical durability, easy maintenance of buildings, and low barriers to physical adaptability to change of use. This will also become an important element in procurement, especially when regulations such as *zero carbon homes* in the UK become more widespread.**

Another technological element driving innovation in the construction sector is the use of IT in constructions, such as smart home technologies, smart construction or intelligent houses. Smart home technologies in buildings are designed to provide various functions and facilities to fulfil the needs of the people living in or using them. Examples of areas of opportunity were identified in an INNOVA expert workshop in June 2009 as:

- *Green smart technologies*, i.e. technical devices designed to reduce the consumption of energy, automatic and intelligent systems which control heating, ventilation, sun blending, etc.;
- *Ambient assisted living*, including smart technologies to assist the elderly and other people with special needs; and
- *Technical gadgets*, including intelligent installations allowing people to improve their standard of living and quality of life.

As the majority of contractors are SMEs, investments in new technology and innovative solutions are often driven by client demands or regulation. Construction companies also depend on access to finance and knowledge, to which SMEs tend to have limited access.

Life cycle view opens up opportunities for diversification

Construction companies could cover more steps in the construction life cycle, for example by shifting more activities towards consultancy and project management, which will create larger margins and execution of construction activities. Facility management is a widely used term. It generally covers three areas where construction companies can add further value:

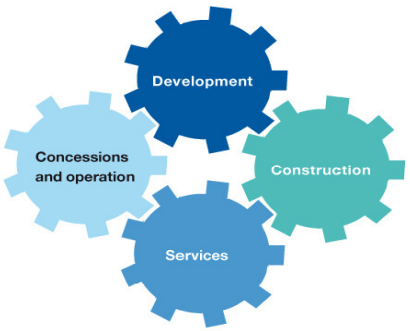
- *Technical* (ICT, operation/maintenance, installation maintenance, building services);

- Service (cleaning services, guard services); and
- *Business related facility management* (Administrative services, HR services).

Incorporating these opportunities in dialogues on building life cycle management may lead to stronger relationships between construction companies and clients.

One example of a company that has based its business strategy on the life cycle approach is HOCHTIEF, one of the leading international providers of construction-related services. HOCHTIEF delivers integrated services covering the life cycle of infrastructure projects, real estate and facilities through four modules (see the figure below)

Figure 3.3: Integrated services delivery: the example of Hochtief



Development: Property development – from design/planning and financing through marketing – either as a complete package or in the form of individual services.

Construction: Traditional construction business and construction management in the field of building construction, civil engineering and infrastructure facilities.

Services: Construction planning, logistics, asset management, facility management, insurance, and construction management at fee.

Concessions and operations: Expanding activities in the concessions and operation module. This module includes the airports, roads and social infrastructure segments and further public-private partnership (PPP) projects.

A shift in paradigm can create new service models

A new perspective is to view a constructed output not as a physical object, but as an asset that, over its operational life, will facilitate and influence the activities associated with it, i.e. concentration, communication, learning, healing, producing, well-being, etc. This causes a radical shift in attention from the traditional hand-over period (design, build and leave) to the years beyond.

In this view, which represents a shift in paradigm, the construction industry is not seen as a supplier of a set of outputs, but as a provider of the most effective long-term support service to its clients. Clients and supply side focus on the value associated with a construction object, i.e. the medium to long term performance of the construction.

Public-private partnerships (PPPs) represent a new means to finance, build and manage public buildings and infrastructures. There is a spectrum of different PPPs ranging from almost fully public to almost fully private. PPPs are primarily relevant for projects and sectors where service and product quality can be clearly specified, measured and guaranteed. So far, PPPs in Europe have been successfully employed to provide road and railway infrastructure, waste and water management, healthcare, and school buildings (European Parliament, 2006). In other words, PPPs are not always the best option, even if there could be benefits from private involvement in public assets provision in some cases.

PPP relationships are difficult to design, implement and operate. Usually in a PPP process, the public authority negotiates through a competitive process, a single contract with a private consortium. Depending on the type of PPP, the private consortium has to provide the competences of a client, a bank, a designer, a construction company and a facilities manager. The public authority may specify the funding, the design, the construction and the operation of a building or an infrastructure for ten to forty years. When the contract is completed, the facility is owned by the public authority (again depending on the type of PPP).

This value focus, i.e. the view of the construction sector as a service provider, takes the contractual forms of i) concessions (traditionally for the construction and operation of motorways and bridges, but also possible for buildings) and ii) multi-year service contracts for public facilities with a guarantee of environmental and economic performance and indoor air conditioning. Such a transformation of the construction industry would require knowledge, public-private partnership models and structures that currently do not exist. It would most probably entail a closer integration of the whole sector in order to achieve the maximum alignment of responsibilities and interests.

Industrialisation and pre-assembly on the back of increased coordination

Another model is prefabrication of construction components where the idea is to speed up the whole process, improve quality, reduce waste and lower the prices of undertakings. The use of industrial robots and automation technology in off-site manufacturing and materials manufacturing is likely to further enhance changes in the construction process. However, the introduction of more prefabricated materials and preassembled parts in construction demands extensive coordination between actors collaborating from different preassembling sites.

In some countries outside Europe, this model is used on a more extensive scale, such as in Japan, where prefabricated housing manufacturers dominate a significant proportion of the private housing market. In some European countries, offsite pre-assembly is slowly gaining interest as a solution to current quality and efficiency problems. Nevertheless, there is still a long way towards actual implementation on a significant scale. One reason for this is that the Japanese model is based on a culture of replacing houses every generation, which is in sharp contrast to the European tradition for using private houses generation after generation. In Japan, it results in a large and continuous demand for short-lived houses, which is an ideal fit for the pre-fabrication concept. In Europe, the demand for new residential buildings is substantially lower, making it harder to take advantage of economies of scale. Moreover, the tradition for using a house for many generations often makes wood or timber a less preferable choice compared to stone.

Lean construction through added coordination and removal of barriers

Lean production management methods have caused a revolution in manufacturing design, supply and assembly. Applied to construction, lean production changes the way work is done throughout the delivery process.[22] The key characteristic of this management system is planning at different levels, securing a continuous flow in the construction process by identifying and removing potential barriers, such as ensuring that materials, machinery and labour are available at the time they are needed. For this to happen, all participants at the construction site must be engaged in the planning process (European Foundation for the Improvement of Living and Working Conditions, 2005). This way of integrating the value chain is increasingly becoming an important factor in public procurement and large-scale private construction projects.

3.4 Subsector – Manufacturing of construction materials

The value chain for the Manufacturing of construction materials consists of very different industries, including:

- Extractive industries providing raw materials;
- Chemical industry and manufacturing industries that turn raw materials into building products; and
- Wholesale and retail chains that sell the construction materials to the construction sector or private consumers.

In addition, a wide range of companies provide services to the Manufacturing of construction materials subsector, such as business services, maintenance, transportation and logistics, while test and certification of building products are carried out by certified bodies, and research organisations and designers assist the sector with the development and design of innovative products and components.

In this section we focus mainly on manufacturers of construction materials, of which the most economically important subsector in the EU27 is "Manufacture of structural metal products" followed by "Manufacture of articles of concrete, plaster or cement" (turnover) and "Manufacture of builder's carpentry and joinery" (employment). However, in terms of turnover and employment, we will also address relevant issues in other parts of the value chain.

3.4.1 Market conditions and competitive pressures

The demand for infrastructure and housing is booming in emerging markets due to economic growth, increasing urbanisation and demographic developments, and thus constitutes a growth opportunity for European producers of construction materials. European producers of construction materials such as the French LaFarge Group are moving into these markets through acquisitions and organic growth and are focusing future business development on emerging countries, notably Asia and the Middle-East, cf. Box 3.3 below:

[22] For more information on lean construction, see http://www.leanconstruction.org/

Box 3.3. Global expansion of European companies – the LaFarge Group
The LaFarge Group designs and produces construction materials, and currently employs 78,000 people in 78 countries worldwide. The LeFarge Group is headquartered in Paris, France and dates back to 1833. According to the LaFarge Group, approximately 70 per cent of global demand for cement comes from emerging markets, and this has led the company to strengthen its market position in these countries: In 2008, the LeFarge Group acquired Orascom Cement, a leading cement producer in the Middle-East and the Mediterranean, and more than 60 per cent of LaFarge's workforce is now employed in emerging economies.

Source: Company website: www.lafarge.com

Access to markets remains a competitiveness challenge for the sector. For instance, European manufacturers in some subsectors are too largely dependent on foreign producers of raw materials, but some emerging economies are applying different measures such as export taxes, quotas or restrictive investment rules aimed at securing the national resource base for their exclusive use (European Commission, 2010b). Foreign countries, according to interviewees, also protect their national construction materials industries by providing subsidies or benefits to local companies or by placing restrictions on foreign investments or imports. This makes it very difficult for European manufacturers to gain a foothold in these markets[23].

Sustainability in processes and new products

A key market trend is the focus on sustainable construction. In the Manufacturing of construction materials subsector this implies reducing the environmental impact of the production of building products through a rethink of industrial practices as well as producing innovative materials that are renewable and/or energy saving. A rethink of the industrial practices in the sector may involve the use of waste products from other industries or construction and demolition debris as a substitute for more expensive raw materials in the manufacturing of construction materials.

One of the key characteristics of the sector is its sensitivity to changes in energy prices. Parts of the Manufacturing of construction materials subsector are highly energy-intensive. This particularly applies to extractive and manufacturing industries. In the cement industry, for instance, energy costs are estimated to constitute 30-40% of total costs. Changes in energy prices may thus have a substantial effect on the costs of the sector.

Subsector specific regulations create barriers and opportunities

The Manufacturing of construction materials subsector is also subject to both horizontal and sector specific regulation and standards, including REACH, regulatory requirements concerning the reduction of greenhouse emissions and the energy performance of buildings as well as European standards relevant for the construction sector as a whole (i.e. Eurocodes, CE marking), and the Manufacturing of construction materials subsector in particular (e.g. the Construction Products Directive 89/106/EC, Life Cycle Assessments). A key competitiveness issue for the European Manufacturing of construction materials subsector is that the producers of building materials often face stricter regulatory requirements and standards in Europe than in non-European markets.

[23] European Commission website – Bilateral relations, China:http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/china/

This makes it relatively more expensive to operate in Europe than in other parts of the world, and thus poses a threat to the global competitiveness of European companies. The same requirements and standards may, however, also provide the European sector and its products with a reputation for high-quality products.

3.4.2 Relative competitive position and performance

The Manufacturing of construction materials subsector has performed well in the last decade. This is reflected in historical data on turnover and employment showing that the sector in Europe experienced continuous growth in the years 1999 - 2007. Developments at national level may, however, differ from the overall trend in Europe. For instance, Germany has experienced a decrease in the number of employees since 1999. Other performance indicators also suggest that the sector is doing well. Since 2002, productivity in the Manufacturing of construction materials subsector has grown by 4.3% per year, and the corresponding number for the value added was 5.7%.

Impact of the financial crisis

Short term Eurostat statistics for 2008-2010, national data sources and interviews with stakeholders suggest that the financial crisis that started in 2008 has had a huge negative effect on the sector's output and employment due to the drop in construction activities and investments.

Box 3.4. Impact of the financial crisis on Manufacturing of construction materials – the UK

In the UK, the Construction Products Association has estimated that the sector's output in 2009 dropped by 12% – the largest fall in a single year since records began in 1955. The latest construction forecasts from the Construction Products Association predict a further decline of 3% in 2010, with the first tentative signs of recovery not expected until 2011. When it does come, the recovery is expected to be very slow with annual growth of less than 1% in each of the three years from 2011-2013.

Source: Construction Products Association, 2010

The stimulus packages implemented by national governments in the wake of the crisis are expected to increase the demand for building products when construction activities pick up. However, representatives of the Manufacturing of construction materials subsector also express concern about the financial health of European countries. They believe that the huge budget deficits are forcing governments to reduce public spending and this may include spending on public building and infrastructure projects thus leaving it up to private investors to drive growth in the sector. Nevertheless, compared to the other sub-sectors, the Manufacturing of construction materials subsector may be less vulnerable to reductions in public investments than the professional construction services subsector that have a direct involvement in public construction projects.

Profitability

Representatives of the Manufacturing of construction materials subsector consider profitability a major issue for the sector. Manufacturers of construction materials are often engaged as subcontractors in building projects, and they are fairly easily replaced by other manufacturers by the contractor. As a result, the manufacturers of construction materials have only limited bargaining power when negotiating contract terms with the

contractor, and this squeezes the prices of building products and thus reduces the profitability of the enterprises in the sector. Limited profitability makes the Manufacturing of construction materials subsector unattractive to investors and according to sector representatives also makes it difficult for enterprises to qualify for bank loans and credits.

Access to labour

The financial crisis has led to a rise in unemployment in the sector, and generally speaking no major shortages with regard to access to labour are said to exist. In particular, young employees with relatively little work experience currently face a very difficult situation in the labour market. However, local or even national shortages may exist with regard to workers with highly specialised skills. The rise in unemployment has led to government initiatives aimed at re-skilling redundant workers for job functions in other sectors of the national economies that face labour shortages. According to representatives of the sector, in the long term there will be a shortage of highly educated employees (engineers etc.).

3.4.3 Industry value chain and internal determinants

Value chain and client relations

The competitive pressure on all parts of the Manufacturing of construction materials subsector is increasing and at the same time costs of raw materials and energy are rising, making it more and more expensive to produce building products. This is leading to a "cost squeeze" and the sector is therefore looking for opportunities to cut costs in all parts of the value chain.

The construction industry generally needs to work in a more integrated way, involving all parts of the supply chain from the beginning of the construction process, not least with regard to transport and logistics. This is of particular importance to the manufacturers of construction materials, who face substantial transport costs and are dependent on the transport and logistics sector for swift and cost-effective delivery of building products. Also, making increased use of off-site manufacturing will reduce the number of shipments and destinations. It is of particular importance that an attempt to address the logistical challenges will be a concerted effort from the industry. The advantages will slowly arise from a new form of interaction in the industry where actors plan together, share information and together expose the real cost of construction activities (Construction Products Association & Strategic Forum for Construction, 2005).

Restrictions on access to capital and delayed payments

Access to capital has been very restricted following the financial crisis – this applies to building material producers as well as clients. The banks have been very reluctant to lend money to small and large-scale construction projects resulting in a decrease in sales. Building material producers also find it difficult to get capital for investments.

Moreover, the financial crisis has resulted in extensive delays with regard to payments from public as well as private clients. Building material producers usually have 30 days to pay for inputs and services, but now have to wait between 60 and 90 days on average for payments from clients. This disturbance in their cash flow is an economic burden for

building material producers as they have to pay the interests on the delayed payments. The European Commission's legislative initiative addressing this challenge for companies (the "Late Payment Directive") is considered a very important step in supporting the survival of companies in the Manufacturing of construction materials subsector.

Prices of raw materials

Another competitive challenge for the Manufacturing of construction materials subsector relates to the current concentration trend in the market for raw materials, which may lead to increases in the price of raw materials. One example is the market for iron ore.

Box 3.5. Concentration in the market for iron ore

The European steel industry association, Eurofer, is concerned about the increasing concentration of iron ore producers. According to the association, this concentration is leading to excessive pricing power. The iron ore industry plans to increase iron ore prices by 80 to 90 per cent. Such a price increase will affect the competitiveness of European steel producers as well as the construction sector and could hamper Europe's economic recovery.

Source: Eurofer

Price and access issues can be addressed in various ways; at international level by ensuring market competition and free access to raw materials, but also through the exploration and development of substitutes that can reduce the dependency on raw materials.

Technology and innovation

ICT is a key driver of product innovation in the Manufacturing of construction materials subsector, for instance in the development of smart materials that allow the monitoring of buildings and structures for maintenance purposes or create ambient environments for users. ICT is also important as a supporting technology that helps optimise production processes and logistics. Finally, ICT may form the basis for developments with regard to service innovation and new business models in the sector. The use of ICT for these different purposes is an integral part of the strategic agenda of the European Construction Technology Platform.

Another key technology for the Manufacturing of construction materials subsector is nanotechnology. The nano-based building products that are currently available on the market include concrete and cement products, nano paint and insulation materials. However, a report published in 2009 concluded that companies in the construction sector lack knowledge of the availability of nano products as well as the properties of such products. This applies to employees in Onsite construction as well as Professional construction services (Broekhuizen & Broekhuizen, 2009). Furthermore, nano products are relatively more expensive than other products. The market share of nano-based products is expected to grow. However, an important issue that may have a negative impact on the future development and use of nano-based products is the uncertainty concerning the impact of nano particles on human health and the environment.

Finally, innovation in other industrial sectors may contribute to the development of new building products. One example is the development and use of geotextiles for construction projects. Geotextiles have been used in the construction sector for decades,

but textile-based materials are increasingly being explored from a design perspective as such products allow for the creation of innovative structures.

Representatives of the Manufacturing of construction materials subsector consider research in support of new products and production methods to be vital for supporting the competitive edge of the sector in the future. According to the sector representative, the European research programmes are an important instrument in this regard, but the research programmes should be more oriented towards industry needs and focusing on bringing new products to the market.

Product and service development

In terms of product development, the sector currently focuses on the energy efficiency of the products, and a key issue for the sector is to develop products that meet regulatory standards and are competitive in terms of reducing energy use compared to other products. ICT also plays a vital role in optimising logistics and developing new services for clients. The uptake of ICT and use of eBusiness in the construction sector in general is lower than in other sectors. Although no specific data on eBusiness in the Manufacturing of construction materials subsector have been identified, the share of companies using ICT for B2C or B2B in the Manufacturing of construction materials subsector should be higher than in other subsectors of the construction industry since this subsector includes wholesale and retailers.

A key challenge for retailers in the Manufacturing of construction materials subsector is to develop and improve their service delivery to private customers as well as professionals in the construction sector. The retailers will increasingly be adding value to their businesses by providing advice on, for instance, the energy efficiency of specific types of building products compared to other materials, as well as helping DIY private customers building up their competences in small-scale construction projects at home, for instance, by arranging seminars for private customers.

3.5 Subsector – Professional construction services

The Professional construction services subsector is highly diverse and includes a large number of very different company types and services. Professional construction services companies undertake tasks as different as land surveying, 3D-modelling, granting of building permits and maintenance tasks in fully operational facilities. Some companies offer the entire spectrum of construction services, whereas others have specialised in a niche so narrow that expansion into international markets is essential (Jewell et. al., 2010). Although professional construction services companies differ widely in terms of markets, level of technology, the skills level of their staff and their competences, they share a number of common characteristics. Most importantly, they are *knowledge intensive.*

The Professional construction services subsector is defined as companies which core activities include one or more of the following activities:

- Architecture;
- Engineering (civil, structural and building services);
- Building control;

- Surveying;
- Project management.

In addition to the services listed above, other professional service providers such as legal, accounting, ICT specialists, and facility management companies also tend to be included in the construction process. However, they play a minor role and only make a limited contribution to the overall performance of the sector. This part of the report will therefore focus exclusively on the services described above.

3.5.1 Market conditions and competitive pressures

Impact of the financial crisis

Professional construction services companies have been severely affected by the financial crisis. The effects have been particularly hard in countries characterised by overheated (speculative) markets. Taking the architectural sector as an example, 25% of European offices have experienced a reduction in staff since September 2008. The Netherlands is positioned exactly on this European average, the UK slightly below and countries such as Ireland and Spain way above with 40% of architect offices experiencing staff reductions during the crisis (Construction Research Council, 2010, p. 4). However, this is a little optimism to be seen for the future (ACE, 2009).

Trends in architectural services

The architectural sector has experienced a growing number of company acquisitions and mergers over the last couple of years. The driver behind this tendency is the increased demand for companies capable of supplying multi-disciplinary services. Architectural firms have generally chosen to merge with engineering companies to accommodate this need. European examples include the Project Management Group's acquisition of Devereux, Capita Symonds' acquisition of Percy Thomas as well as a number of small architectural companies, and Finnish Pöyry that acquired EVATA in 2007 (Van Sante, 2008, p. 42). Architects are thus increasingly being integrated into the total construction process and required to efficiently collaborate with other parties in multiple phases.

In relation to product trends, one important development is the increasing focus on "design for function" rather than "design for form". The increasing demand for cheaper, better and more intelligent buildings poses new challenges for architects, who need to integrate these elements into their designs (Schartinger, 2009:14-15). Another key development is the increased focus on the environment and eco-efficiency in construction, which impacts both the choice of materials and the design of the building itself (see ibid. s. 14).

Trends in engineering services

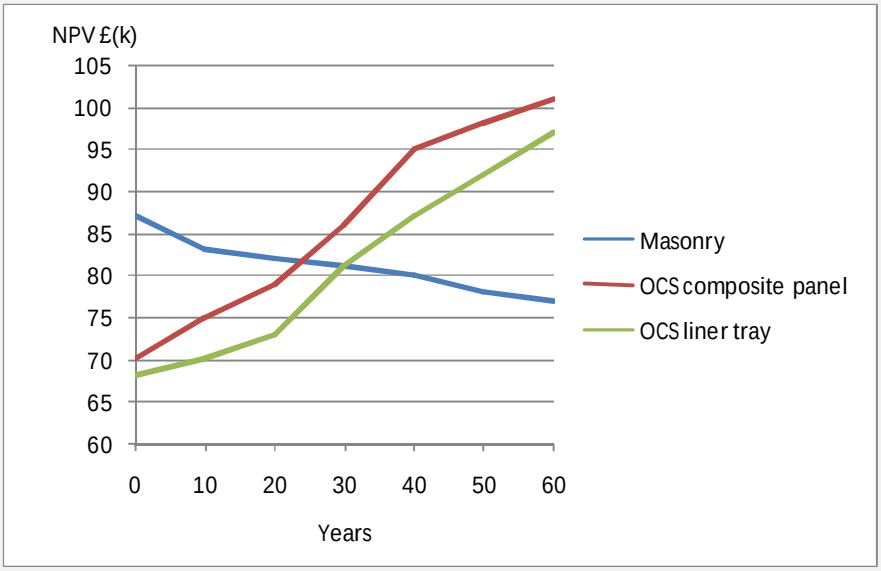
Also in the engineering services sector, mergers and acquisitions have become a popular means towards addressing the challenges of the financial crisis (see PriceWaterhouseCoopers, 2009a). For the companies involved, this has many advantages, and economies of scale and gaining market access are in most cases the most important ones. More specifically, gathering in larger units has been used as a means to exploit further investments in ICT, reduce salary costs and thus enable the company to undertake

larger projects. Moreover, acquisitions have been used to buy expertise that the purchasing company did not have in-house (Van Sante, 2008, p. 34).

Another key development is the growing attention towards risk management. Due to the high number of actors collaborating on construction projects and the fact that every location, environment and solution is unique, communication and performance errors are always a concern. To address this issue, companies focus increasingly on project management and the creation of an integrated plan for the entire construction process. Building Information Modelling (BIM) systems can become an invaluable tool in this regard (see Section 3.5.6). For engineering consultancies specifically, another common strategy for reducing failure costs is to integrate construction companies at the earliest possible stage (Van Sante, 2008, p. 22).

Box 3.6. Choosing the right materials for a hospital wall – An example of life-cycle cost calculation
The graph below compares the life cycle cost of three different systems for building a 1000 $m^{2:}$ conventional masonry construction and two different optional component schemes (OCS).

The graph shows that even though conventional masonry is by far the most expensive one to purchase, it is clearly the cheapest option in the long run. Picking the optimal option solely depends on the intended lifespan of the building.



Source: Corus, 2004

Another trend is the increasing focus among clients on reducing a building's life-cycle costs instead of just the costs associated with the construction project itself. The costs of maintenance, energy consumption, rebuilding and final demolition are also taken into account when planning a new construction project. Engineering service providers need to be aware of this new competition parameter and act accordingly.

The growing attention to environmental issues is another important trend affecting European engineering services. Materials where minimal energy has been used for production and transportation as well as recyclable materials are becoming increasingly popular. Moreover, increased attention is given to minimising the use of energy spent on

regulating temperatures inside of buildings, putting issues such as insulation, use of renewable energy sources and energy-saving heating and cooling technologies at the centre of attention (Schartinger, 2009:11-15).

Trends in building control

The key role of building control bodies is to perform site inspections and to ensure that building plans are in compliance with local construction regulations. They affect the competitiveness of the sector in two main ways: 1) they ensure sure that construction companies comply with high standards, 2) if ineffective, they can be a potential obstacle to new construction projects.

Throughout most of the European continent, building control has traditionally been carried out by local authorities. In recent years, however, private parties have started to take over more and more of those responsibilities in an increasing number of countries. The table below shows four systems with different private-public arrangements and tries to categorise the building control systems of different European countries:

Table 3.2: Private-public arrangements in European building control systems

	Responsibility for control of building plans			Responsibility for granting permits		Countries
	Public	Semi-private	Private	Public	Private	
1. The traditional system	x			X		DEN, NL
2. Private control carried out on public mandate		x		X		FRA, BEL, GER
3. Full private responsibility for control			x	X		NOR, SWE
4. Private organisations qualified to grant building permits	x				x	UK (ENG, WAL)

Source: Visscher & Meijer, 2007.

Although the traditional system of full public responsibility is still the most common, the table clearly illustrates the move towards increased private involvement. The responsibility for granting permits has only been privatised in England and Wales, but the responsibility for control of building plans has to some degree been outsourced to private parties in a substantial number of countries.

Role and importance of construction surveyors

Construction surveyors (not to be confused with land or quantity surveyors) measure the landscape of the future building site. They locate the alignments and compute the quantities of earth that needs to be added, removed, or moved. They determine the site topography, existing buildings, and both over and underground infrastructure. After construction is completed, they perform a so-called “as-built survey” to verify that the work authorised was completed in conjunction with the specifications laid out in the building plans.

Since both the planning of the construction project and the design of the structure is based on surveying results, surveyors play an important role in securing a healthy construction process. The results and calculations must be of high quality and delivered as quickly as possible. The evolvement of GPS technology has made a substantial difference in this regard. However, since it only has limited accuracy, surveyors still partially rely on traditional working methods and instruments. The introduction of new and more advanced techniques, such as laser-based methods, seems to be changing this slowly.

Role and importance of project managers

A project manager or management company is the client representative and the overall responsible for accomplishing the stated project objectives. The primary objective of the project manager is to effectively manage cost, time and quality. This is first and foremost achieved through a clear formulation and communication of the project objectives to the parties involved.

The performance by the project management team highly influences the success of a construction project. Some of the incidental risks associated with poor project management performance are:

- Unclear or unattainable project objectives;
- Poor scoping;
- Poor estimation;
- Budget based on incomplete data;
- Contractual problems;
- Insurance problems;
- Delays;
- Quality concerns;
- Insufficient time for testing.

As the construction process has become increasingly integrated and more and more actors work closely together in multiple stages of the process, effective project management has become even more important. The project management field might not be as labour and profit heavy as for example the architectural and engineering sectors, but its importance in securing a competitive construction market may be just as high.

3.5.2 Relative competitive position and performance

Production

The production of European professional construction services companies has been fairly constant over the last couple of years. Some countries have, however, experienced remarkable growth even during the course of the financial crisis. Poland and the UK have seen significant rises in production numbers, particularly in the civil engineering sector of which engineering consultancy services make up a large part. In Poland's case, this development can be ascribed to two main factors, i.e. the support of EU Structural Funds (€22.1bn from 2007-2013) and the EURO 2012 preparations. In the case of the UK, renewed infrastructure investments and preparations for the 2012 Olympic Games have been key contributors to recent developments.

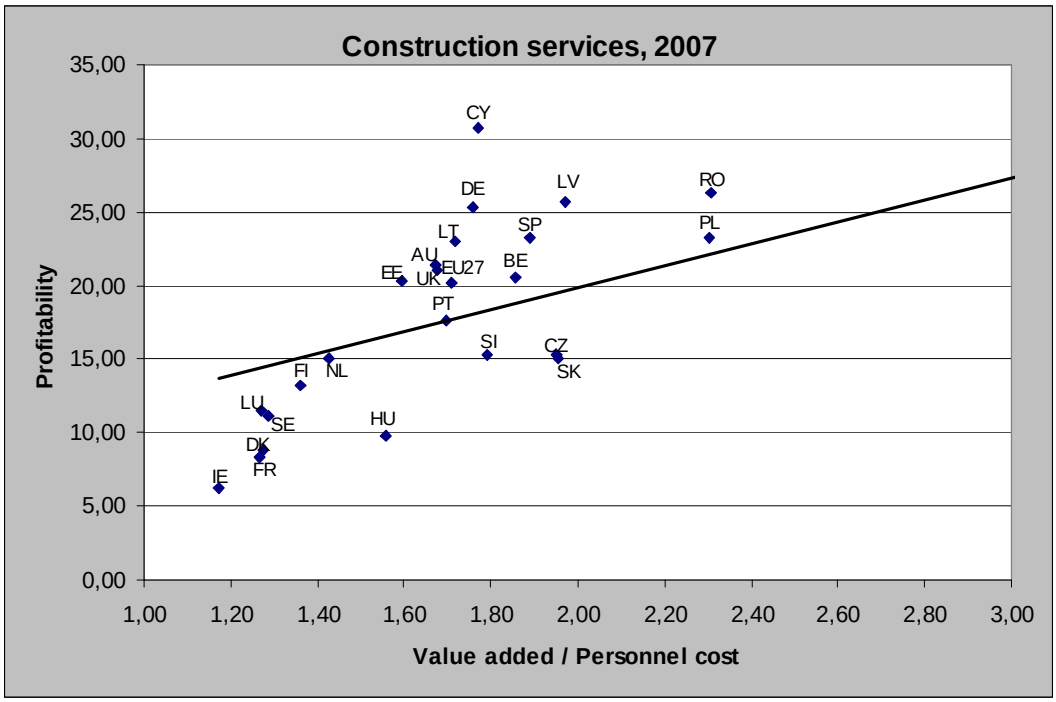
Productivity

The productivity level of the Professional construction services subsector differs significantly from country to country. According to Eurostat data, the highest productivity level is found in Denmark, where each person employed in the sector on average generates a turnover of €179,000 per year. The two largest markets for professional construction services in Europe, France and UK, are also highly efficient. Their leading position on the European market in terms of total turnover is thus not just a result of a large number of companies and employees in the sector, but also due to the highly efficient way in which their professional construction services companies function.

Generally, there is a clear divide in productivity between the EU15 countries and EU12 Member States, most of whom have very low levels of productivity. The leading position of the EU15 countries is a result of a number of factors including longer experience in the professional construction services field, higher education levels, more efficient processes, and their more extensive use of new technologies and ICT.

Professional construction services companies spend over 50% of their total turnover on wages on average. The figure below shows rather clear correlation between how much added value is gained per Euro spent on personnel and the ability to create profits. Countries such as Ireland, Denmark, Finland and the Netherlands all have highly productive Professional construction services subsectors. However, because of the high cost of their staff, their value added per Euro spent on human capital is relatively low resulting in a low profitability level compared to other EU countries.

Figure 3.4: Construction services: value added and personnel costs versus profitability (2007)

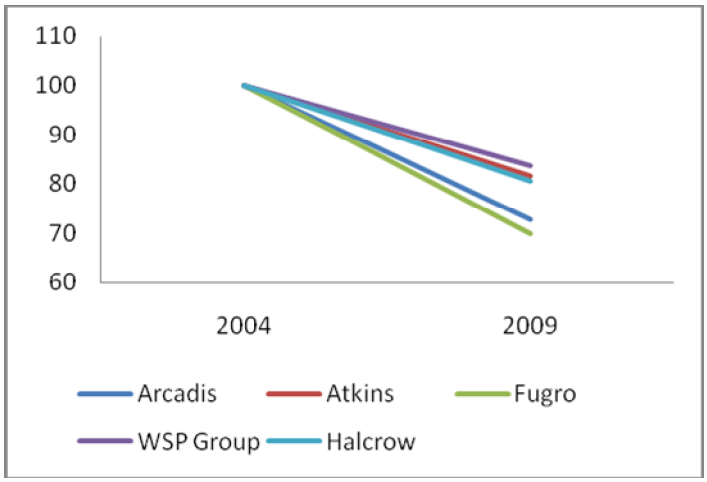


Source: Eurostat SBS (NACE Rev.1.1)

International performance (exports)

Measuring the international performance of Professional construction services companies is generally difficult (see Jewell et. al., 2010; Meikle & Grilli, 2002). However, by comparing annual reports from a handful of the largest firms in the Professional construction services subsector from 2004 and 2009, it is clear that the proportion of national activities has declined to make way for a higher proportion of overseas projects. Each of the top-15 architect and engineering companies shown in the figure below has increasingly embraced foreign markets in recent years.

Figure 3.5: Share of revenue created from national activities – development in five top-15 architect- and engineering companies in Europe (Index 100)



Source: Comparison of annual company reports from 2004 and 2009

European architectural companies are primarily active on national markets. Exports only account for about 6% of the turnover created by the European architectural companies, although there are substantial national differences. Denmark has the highest export rate of 12.4% while exports only make up 1.5% of the turnover of Greek companies. A clear majority of European architects; in total 93%, work or reside in the same country in which they are registered (ACE, 2008, p. 15). The profession has generally been cautious in terms of expanding into other EU Member States and embracing the Single Market model (p. 55).

Companies in the engineering services sector are slightly more oriented towards international markets than their counterparts, although they still primarily rely on national and local activities. It is estimated that between 10-25% of the companies' turnover stems from international activities. There are substantial differences from company to company and from country to country. Among the largest engineering consultancy companies, some derive over 50% of their turnover from international markets (Grontmij, Sweco), while others are almost exclusively nationally oriented (Mouchel). Engineering consultancy companies in the United Kingdom and the Netherlands are generally more internationally oriented compared to most other European countries, whereas German companies have a tradition for focusing almost exclusively on the national market (Van Sante, pp. 30-31; 45-46).

The reason for the relatively low level of international activities by European professional construction services companies primarily lies in the differences in customs, regulations and cultures between national markets. It takes in-depth knowledge of national and often even local affairs, market structures and players to be able to compete with national companies. These competences are difficult to attain in-house, making subcontracting or opening foreign offices the most viable alternatives. However, there are also many advantages to undertaking foreign activities. The international scope of some companies enable them to offer a complete array of services to multinationals that require service providers that are active in multiple countries. Moreover, internationally oriented companies are not as sensitive towards economic developments and market trends in a single national market, which contributes to a more stable cash-flow (ibid.).

Access to labour

In the architectural sector, there is currently no substantial skills problem and recruiting skilled labour is generally not difficult. The age profile of architects is currently also relatively young, causing no fear of mass retirements in the near future. Of more concern is the possibility that the current economic situation and slowdown in construction activities may discourage entry into the profession and cause a drop in the number of architectural students in the future.

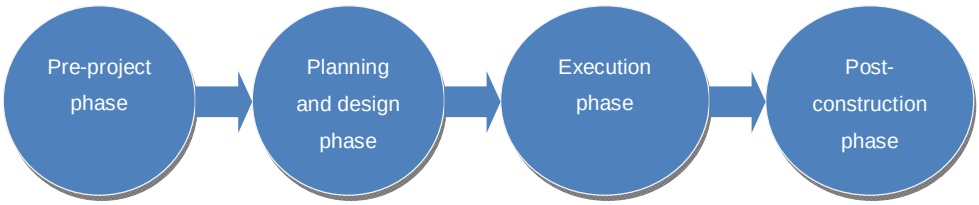
In the engineering services sector the availability of skilled labour presents a major challenge for the future. The sector's workforce is ageing, leading to a rising number of people leaving the workforce, whereas the number of young people entering the workforce is declining. A European sector study (Van Sante, 2008) predicts that this tendency will continue at least until 2017. The sector is highly dependent on the number of engineering graduates and in all European countries, except Denmark and the Czech Republic, the number of educated engineers compared to the total number of university graduates is declining. This mirrors a declining interest in the field among young people, which can be ascribed to a lack of knowledge of what engineers do and a poor public image. As a response to this trend, recruitment arrangements between companies and universities as well as international recruitment have become increasingly popular. According to the above-mentioned study, 90% of UK engineering companies reported using international recruitment (ibid. 2008, pp. 26-28).

3.5.3 Industry value chain and internal determinants

Value chain and client relations

Providers of professional construction services are spread across the entire construction value chain, generating different forms of value in different phases of the construction process. The figure below divides the construction process into four different phases:

Figure 3.6 The construction value chain - Four phases



In the pre-project phase (1) the first step from idea, demand or desire to specifically planning the construction project is made. In this *pre-project phase*, project managers often play an essential role in advising the purchaser about different project types, selection of contractor, contractual arrangements, payments, etc. In the *planning and design phase* (2), the professional construction services companies play their most important role. The architectural companies create the design of the structure and the engineering companies participate in areas such as cost estimation, scheduling, layout surveys and quality control. Building control bodies perform building plan inspections and grant the final permit. Surveying and consultation of financial and legal specialists are also carried out before the actual construction is begun. During the *execution phase (3)*, the engineering and project management companies continue to play important roles. Building control bodies perform site inspections to ensure that construction standards are met. In the *post-execution phase (4)*, they remain responsible for ensuring that building standards continue to be met as legislation and regulations are updated regularly. It is also in this phase that companies provide facility management and maintenance.

The table below illustrates the core tasks of the professional construction services companies in the different phases of the construction process.

Table 3.3: Core tasks of professional construction services companies in the construction value chain

	Pre-project Phase	Planning and design phase	Execution phase	Post-execution phase
Architecture	Consulting	Design	Implementation	-
Engineering	Consulting	Planning, estimation, consulting	Quality assurance	-
Building Control	-	Plan checks	Site inspections	Follow-up
Surveying	-	Core surveying	Verification	“As-built” analysis

	Pre-project Phase	Planning and design phase	Execution phase	Post-execution phase
Project Management	Formulation of project objectives	Scheduling, project management	Project management	-
Other services:				
Facility management	-	-	-	X
Maintenance	-	-	-	X
Legal specialists	-	X	-	-
Financial specialists	-	X	-	-
ICT specialists	-	X	-	-

Note: Grey areas illustrate core activities

Changes in processes

A growing number of large construction companies are moving away from focusing exclusively on the execution phase. They are shifting in the value chain, either going backward to embrace services in initialization, planning or design, or going forward to operational, maintenance and facility management related activities. In these phases a higher margin can be achieved and by spreading across multiple phases, the companies are less sensitive to the economic cycle (JBR Hellas, 2001, p. 2). As a result, small professional construction services companies already operating in these stages experience increased competition from the large enterprises that offer broader solutions. Some are taken over by the large enterprises and others respond to the increased competition through further specialisation or participation in consortia with other small companies offering services at other stages.

Another trend is that professional construction services firms (engineering companies in particular) try to engage in close partnerships with clients at the earliest possible stage. Through closer and earlier involvement, a better mutual understanding between company and client is developed. This results in enhanced client satisfaction, a better end result and lower failure costs. By integrating the future users of the building already in the planning and design phase, it is further ensured that the building is fully in line with the demands of its end users.

Digitalisation

Digitalisation might be one of the most important process developments in the Professional construction services subsector in recent years. For architects and engineers the use of digital technology in materials and construction products has created new markets and specialisation areas. However, the biggest impact of the digitalisation phenomenon on the Professional construction services subsector relates to coordination and organisation. The increased use of ICT has resulted in more effective service delivery processes due to better performance in areas such as communication, simulation and cost calculation (Schartinger, 2009, pp. 7-8).

New technologies have promoted outsourcing/off-shoring of some activities, such as the ability to access 24hr CAD services. On the whole, this is seen to be advantageous for the competitiveness of construction service providers in that it reduces cost, increases efficiency and improves the services provided. New communication media and wireless technology have improved communication in the construction process; both in the professional construction services companies internally and among the different partners of the project. Integration of such tools has also fostered an increased use of remote access to information systems, building plans and other project related materials.

The use of ICT is spreading relatively slowly in the construction sector compared to other sectors:

Table 3.4 ICT usage by enterprises in Onsite construction and business services

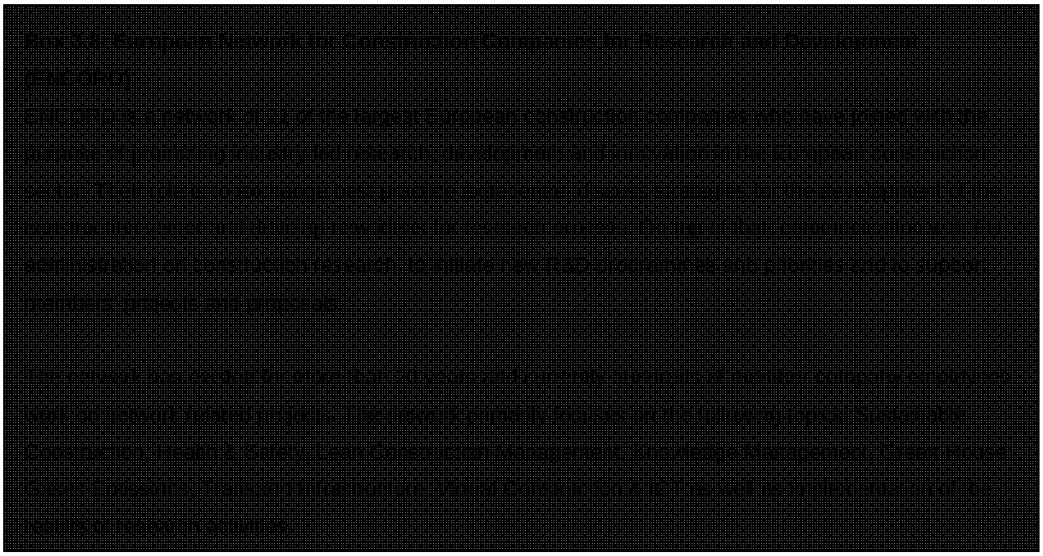
ICT uptake	Onsite construction	Professional, scientific and technical activities
% of persons employed using computers at work in January 2009	30%	79%
% of enterprises having purchased online in 2008	15%	35%
% of enterprises having sold online in 2008	3%	8%
Use of ICT to share information with business partners in 2009 (automated data exchange)	27%	28%
Use of ICT to share information with business partners in 2009 (via supply chain management to customers and suppliers)	8%	8%

Source: Eurostat Community Survey on ICT Usage and eCommerce by Enterprises

Technology and innovation

The use of advanced science and technology in the construction process is receiving increased attention. The use of advanced building products and nano-technology in the construction of intelligent buildings is becoming increasingly popular and will undoubtedly play an even bigger role in the future. The new materials include nano-based materials, where nano-technology is applied to equip materials with, for example, increased strength, durability and toughness or to provide traditional materials with special properties (energy-absorbing concrete, self-cleaning and light-regulating window-glass, etc.). Other new materials include light-weight materials and smart materials, where integrated microscopic sensors ensure easy and on-going monitoring of the condition of the materials used (Schartinger, 2009:8-9).

Not only materials but also the buildings themselves are increasingly becoming subject to advanced digital technologies. So-called “Smart Home Technologies” are receiving increasing attention in the field. In this instance, the building automatically adjusts to external changes in light, temperature, humidity, etc. (ibid. pp. 16-17). Such developments emphasise the necessity for closer collaboration between professional service branches - particularly architects and engineers.



Source: ENCORD website: http://www.encord.org

The use of Building Information Modelling (BIM) is another key technological development in the sector. The purpose of BIM is to use three-dimensional, real-time, dynamic building modelling software to manage the entire building process and thus increase productivity in building design and construction. Through the use of such systems, a project's key functional and physical characteristics can be explored digitally before it is built. The use of BIM requires solid digital skills, increased focus on the building process as a whole and a higher degree of information sharing than what most architects and engineers are traditionally used to.

The work carried out by the modern professional construction services company is thus becoming more and more digitalised and the systems used increasingly integrated and advanced. This makes the building process more effective, results in better buildings and prevents major errors and thus cost overrun, but it requires an integrated mind-set and a digitally oriented workforce (ibid. s. 7).

Diversification

Diversification has become a common construction industry phenomenon, and the tendency also clearly shows in the Professional construction services subsector. Whereas previously, each task in the construction process was largely undertaken by a small specialised company, an increasing number of professional construction services companies today cover a wide range of construction activities. Some companies even cover the whole life-cycle of a construction project. The integrated construction process and total solutions offered by the professional construction services companies enable clients to perform "one-stop-shopping". This is in growing demand since it reduces costs, enhances quality and limits errors.

Specialisation

Only large companies are, however, able to effectively cover the multiple phases of the construction process. Small companies, in particular, lack the labour and financial capacity to follow a similar path. They often choose the exact opposite route by specialising further in one or a few core activities. Specialising within a small niche

enables them to offer services which large enterprises, due to their more general focus, are not able to deliver effectively. In recent years, many small companies have changed their business strategy by limiting the range of services and instead expanding into foreign markets. One such company is the Danish architectural company, Bjerg Arkitektur A/S, which has successfully changed from delivering a wide range of architectural solutions to focusing more intensively on designing passive houses.

Expansion through internationalization

Although the Professional construction services subsector is highly locally oriented; just like the construction sector in general, , internationalisation is gradually becoming more widespread. The value of the construction industry is dominated by local resources such as land, labour and building products and construction is therefore somewhat dependent on the local area of the building site. However, when it comes to Professional construction services there are fewer natural geographical ties, at least in theory. Through foreign activities, companies can embrace new markets and make themselves less sensitive towards national economic developments (see Section 1.1.3 for more on international activities in the Professional construction services subsector).

Private Finance Initiatives (PFI) opens up new business opportunities

Another development in the Professional construction services subsector is the changing nature of contracts signed with both public and private clients. Private Finance Initiatives (also referred to as Public Private Partnership (PPP)), where private actors finance some of the assets associated with public construction projects, are becoming increasingly common. In return for their financial commitment, the private partners receive the right to operate and provide long-term services on the project. Private Finance Initiatives are seen in all European countries but are most common in the United Kingdom and France. In the Netherlands, Belgium, Germany, Poland and Romania, there is a political commitment to PFI and in some cases on-going pathfinder projects. Countries such as the Czech Republic, Denmark and Sweden have shown interest, but have not used PFI to a significant extent thus far.

Generally, PFI presents new business opportunities for professional construction services providers. At the same time, there is also increased financial risk attached to these contracts, since companies usually take part as commissioners of the project. Further, PFI contracts have been criticised for favouring large companies that have the necessary financial and administrative resources. This leaves the small engineering companies to either participate in consortiums or to focus on tasks which can still be outsourced, such as providing functional specifications or act as management agents (Van Sante, 2008, p. 24-26; 34).

Bundling of contracts and creating alliances changes the service landscape

Bundling of contracts is another contract related development becoming increasingly common in the European construction industry. This creates an advantage for large companies as they are able to provide total solutions and take on the financial risk and responsibility. Small companies often lack the capacity to undertake such projects on their own, and therefore need to engage in partnerships with other companies to respond to this development (Van Sante, 2008, p. 34-35).

Product and service development

Most of the important trends in product and service development in the Professional construction services subsector are all in some way related to energy and environment issues. Both in terms of new specialised services, new types of constructions and in the inclusion of new types of materials, the green agenda plays an essential role.

New specialized services fuelled by energy efficiency

Expertise in provision of alternative energy and in energy efficient construction is currently in increasing demand. To consulting engineers, this tendency has resulted in good business opportunities as environmental regulations across the EU have become stricter and the demand for sustainable solutions has increased as a result. Engineering consultancies are experiencing fast growing markets, particularly for projects related to groundwater, surface water, air and soil quality, ecology, nature, and climate change. These markets are very attractive to the companies in the sector because they are less cyclical than the construction market and thus reduce cash flow volatility (van Sante, 2008, p. 39-41).

Source: http://ramboll-wind.com/~/media/Files/ROG/Offshore_Wind/Foundation_design%20Ramboll.ashx

In the construction market, engineering services have increasingly specialised in reducing CO2-emissions through a variety of different services and concepts. Use of sustainable energy, low-energy heating and cooling systems, insulation, air tightness and improvement of energy efficiency of appliances are just a number of areas in which engineering consultancies have increasingly specialised. Activities related to energy issues are also making up an increasing part of the tasks undertaken by the European architectural companies. The increasing demand for services related to green design, use of eco-efficient materials, passive heating, etc., has clearly created new markets for architectural companies, which they are embracing.

New types of constructions and materials

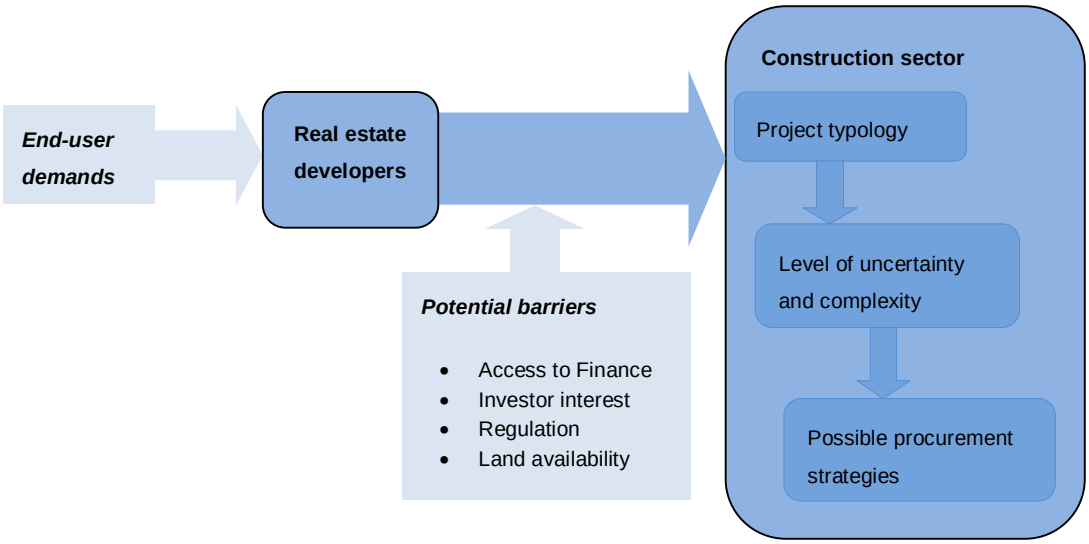
Concepts such as sustainable buildings, green buildings, passive houses, low-impact buildings, low-energy-buildings and zero-energy buildings have seen the light over the last couple of years. Professional construction services companies have also increasingly specialised in utilising new types of building products in their design and planning of construction projects. European professional construction services companies have generally not faced a substantial demand for intelligent buildings. However, when it

comes to eco-efficient construction the demand is currently high and still growing. Many architectural companies and engineering services have adjusted to this trend, which, according to the Innovation Foresight Report on the Construction Sector, is expected to last for many years to come (Schartinger, 2009).

3.6 The Real estate services sector

Real estate developers represent a significant client segment for the construction sector. Trends in needs, demands and regulatory pressure in the Real estate services sector will therefore have great impact on developments in the construction sector. As illustrated in figure 3.6 below, the relationship between the two sectors is complex.

Figure 3.6: Influence of real estate developers on the construction sector



Real estate developers primarily act on the basis of the demands of the end-users whether they are buyers, renters, businesses or just ordinary citizens in demanding housing. Their overall demands largely determine the types of projects in which the real estate developers are willing to get involved. However, a number of other factors such as their purchasing power, their preferences for sustainability, and various social and demographic trends also have an impact in this regard. A number of different potential barriers impact whether and how these demands are transferred into actual construction activities. They include limited access to finance, shortage of willing investors, strict policy and regulatory demands as well as land availability. The potential barriers and their current influence on the Real estate services sector and thus the construction sector will be described in further detail below.

The demands from real estate developers do not only impact the amount of Onsite construction activities undertaken, but also impact the project type, the level of uncertainty and complexity of the project, and thus the possible procurement strategies adopted. Figure 3.7 below illustrates this phenomenon by showing that particular demand chain requirements are associated with a specific range of feasible procurement methods. For example, the less standardised the project is, the higher the tendency is to select more traditional forms of procurement methods where design and construction process are

separated. Likewise, the more standardised the construction process is, the more it opens up to FDBOT (Finance, Design, Build, Operate and Transfer) procurement methods, including PFI/PPP. The selected procurement strategies, in turn, affect the number and types of actors involved as well as the constellation of the project consortium.

Table 3.5: Demand Chain Management, Uncertainty and Procurement Strategies

Demand Chain Requirement	Project Typology	Level of Uncertainty and Complexity	Possible Procurement Strategies
↑ **Unique Construction** *(Distinctiveness, Novelty, Innovation and Creativity)*	Quo Vadis / Open Project Semi Open / Radical Change	High Uncertainty High Complexity	*Non Integrated Routes* • Traditional overlaid with Project Management • Construction Management *Partially Integrated* • Any of the above overlaid with Partnering *Integrated Routes* • Prime Contracting
Customised off-the-peg *(previous projects used as a protocol but with significant bespoke facets)*	Semi-Open	Tendency to Medium Uncertainty and complexity	*Non Integrated Routes* • Traditional as above • Traditional with single and two stage tendering • Construction Management / Management Contracting *Partially Integrated* • Any of the above overlaid with Partnering • Design and Build / Early Contractor Involvement *Integrated Routes* • Prime Contracting
Off-the-Peg *(similar project protocols already in existence permitting significant elements of standardization)*	Semi-Closed	Tendency to Medium Uncertainty and complexity	*Non Integrated Routes* • Traditional as above • Traditional with single and two stage tendering • Construction Management / Management Contracting *Partially Integrated* • Any of the above overlaid with Partnering • Design and Build *Integrated Routes* • • Prime Contracting

Demand Chain Requirement	Project Typology	Level of Uncertainty and Complexity	Possible Procurement Strategies
Process *(Repeat demands, high levels of standardization)*	Closed	Tendency to Low Uncertainty and Complexity	*Partially Integrated* • Design and Build *Integrated Routes* • Design and Build overlaid with partnering • Serial Contracting overlaid with partnering • Alliancing using technology clusters • Frameworks • Prime contracting • Finance, design, build, operate and transfer (FDBOT) • PFI/PPP
Portfolio *(any combination of the above)*	-	Diversity of Situations Apparent	*Integrated Routes* • Frameworks • Strategic and project partnering • Alliancing using technology clusters • Prime Contracting • Finance, design, build, operate and transfer (FDBOT) • PFI/PPP

Source: Male & Mitrovic (2005)

Current state and challenges

Real estate developers were among those hit hardest by the global financial crisis, and the impact of the crisis is still clearly felt in the sector. In Ireland, for example, the market value of real estate is now 50% lower than it was three years ago, and in the UK the number of homes currently being built is at its lowest level since World War II.

Many companies and families have had to fight hard just to stay in their current buildings and homes, leaving little demand for new real estate. Although the market has turned for the better and demand is slowly returning, there are two overall concerns overshadowing theses positive trends.

First, there is the question of how the withdrawal of government stimulus packages will affect the general economic recovery in Europe. This is likely to lead to cautious behaviour in the sector until the final answer to this question is known. Second, there is widespread uncertainty in the sector of how the financial system will handle the banks' large real estate debts. Although the scale of real estate debt that needs refinancing is enormous, the banks are generally not expected to sell out their distressed loans and assets at discount rates in a big fire sale. Instead, they are expected to work them out over time, but it is not clear how this will be done.

The European banks are generally cautious in their behaviour and are expected to remain so for at least two or three more years. They do provide real estate loans, but they are few and far apart and generally expensive. For large deals to materialise the banks are increasingly clubbing together or syndicating loans. However, equity is expected to be in excess in the near future, particularly from conservative institutions like insurance companies, sovereign wealth funds and private property vehicles. These institutions are, however very selective in their investments, generally preferring low-risk assets in mainstream commercial property sectors. Niche sector real estate services such as student housing, hospitals, self-storage, retirement homes, car parking, agricultural land and garden centres are expected to have major problems finding willing investors (Urban Land Institute & Price Waterhouse Coopers, 2010).

Private-public partnerships have emerged as an attractive solution to the current uncertainties on the real estate market. The risk-sharing element is popular among developers and the combination of the stability provided by public entities and the know-how and efficiency of private players has resulted in successful materialisation of many large construction projects even during the crisis. There are however also various problems and risks associated with the increased use of PPP, including the dependency of real estate developers on raising profits, which in some cases has led to low-quality end results. Also, the more expensive interest rates of private versus public debt make some projects more expensive than they would have been, had they solely been run by public entities (Real Estate Advisory Group Germany, 2009).

The largest challenges faced by the real estate developers according to national sector organisations are strict regulations, low purchasing power among end users, lack of finance, and in some cases lack of land availability.[24] They point to a number of regulatory initiatives that have resulted in higher project costs, while market values are at the same time falling. They include “affordable housing” provisions requiring a substantial number of homes to be sold at a price “affordable” to median income families. Community infrastructure requirements and “excessive open space demands” are other factors which, according to the sector organisations, limit development viability and house building.

The type of regulatory barriers most often cited are the compulsory energy efficiency ratings for buildings that have been introduced by national governments and the European Union. A study shows that reducing carbon emissions in a building by 25%, which many European governments have made mandatory, raises the price of the building by 5-7% (Miller, 2007). Since end users are either not able or willing to pay for the costs associated with implementing the stricter standards, the financial burden falls on the real estate developers. They also see the limited purchasing power of potential house-buyers and companies as a major barrier towards development, and point to increased financial assistance as a solution. The lack of mortgage availability for real estate services firms is another growing concern in that it hinders particularly small companies in undertaking “desirable and much needed housing projects” (Home Builders Federation, 2010). Due to the cautious behaviour of banks as a result of the financial crisis, they are still reluctant to provide necessary mortgages that would enable many smaller companies to function

[24] Based on HBF position papers and correspondence with representatives of IHBA, and UPSI.

properly. In some countries, including the United Kingdom, land availability in desirable areas is also cited as an obstacle for the construction of attractive housing and office buildings.

A recent survey (Kok et. al., 2010) suggests that property investors have introduced sophisticated environmental policies although the survey has more than likely received responses from the most environmental friendly property investors. However, the survey also shows that whereas policies are well developed, the property developers are not yet "walking the talk". Only 19% can report actual energy consumption measurements, 16% water consumption, 11% waste recycling and 14% carbon emissions. Less than 40% of the responding property investors have smart meters in place, and less than 22% have an environmental management system in place. In other words, the journey towards energy efficient buildings is just starting. Nevertheless, the survey also suggests that the environmental performance of the property sector is bound to improve as 89 property companies and funds out of 198 respondents now have staff dedicated to environmental management and many of the assets acquired/developed in 2008 adhere to green or energy efficiency standards (ibid.).

In sum, although the European economy is slowly recovering, the Real estate services sector currently faces a number of challenges, which highly impacts the number, size and types of actual Onsite construction activities undertaken.

Future trends

Most European real estate services actors will shy away from development in the short term, which is likely to have a substantial negative impact on the construction sector. The sentiment towards development continues to decline although the fall is not as steep as was the case in 2009. The future for real estate development is thus slowly becoming brighter, but it will likely take some time before developing activities return to a significant level (Urban Land Institute & Price Waterhouse Coopers, 2010).

For those new developments that do take place, green construction is in high demand. A British study shows that 20% of end-users are willing to pay substantially more for buildings with green features. The same study also revealed that roughly one third of the interviewed end-users were willing to make substantial investments to make their existing buildings greener (Miller, 2007). The general feeling in the sector is that energy efficiency cannot be ignored, and an increasing number of "green converts" are seen among actors in the sector (Urban Land Institute & Price Waterhouse Coopers, 2010).

In the short term, niche-sectors will generally have low priority amongst developers. The type of real estate services that caters to the ever increasing older population, such as hospitals, sheltered accommodation, senior housing, residential care homes, and private clinics, is perhaps the only niche-area likely to be on the rise, although government policies will be a large determinant of how things develop. Generally, real estate services actors prefer more secure investments in mainstream areas, and therefore niche activities will most likely be of little interest to investors and thus developers.

Geographically, the preferred areas for real estate development are the large markets in the UK, France and particularly Germany. Germany is generally perceived as the most secure market among both investors and lenders, with Hamburg and Munich as the top investment prospects. Istanbul and Warsaw are also viewed as attractive real estate markets, particularly in the long term.

The cautious behaviour of banks in relation to providing loans for real estate projects can be addressed by either establishing alternative lending schemes or by providing increased security for banks willing to invest in non-mainstream real estate projects. In order to address the low purchasing power of end-users, one option is to provide more financial help for potential house-buyers through financial schemes based on concepts such as shared equity or deposit saving. Delivering enough developable land in attractive locations is another very straightforward way in which national and local governments can assist real estate developers.

The most frequently mentioned barriers, however, are the standards and regulations imposed by governments on real estate developers. Many of them are direct results of the EU objectives for carbon emissions, and the sector generally seeks greater political recognition of the fact that alone it cannot absorb the increased costs. Either cost sharing initiatives or finding alternative ways to achieve the EU objectives, such as to focus more on ensuring compliance with regulatory demands on existing housing, is suggested.

3.7 Conclusions

The future competitiveness of the construction sector is important not just for the different subsectors, but for the European economy as a whole. Improving the performance of the construction sector is likely to improve performance of most other economic sectors as well as increase the quality of life for Europeans. Improvements of performance could for example focus on:

- The total life cost of constructed objects;
- Meeting the future needs of end-users (in a flexible way); and
- Creating constructions that are more healthy, safe and sustainable (both to inhabit and to construct).

Construction

The current economic crisis has hit the construction sector very hard. In particular, the sharp decline in the residential market has affected the majority of construction companies. Many of the companies that specialise in new private residential house building have either been declared bankrupt, have downsized dramatically, or have shifted attention to public housing and/or maintenance work. However, construction companies involved in other markets have also been affected. Currently, public investments and governments' anti crisis measures, although not all successful in the medium term, have kept the sector afloat.

A number of factors will influence the future competitiveness of the sector (10 year perspective) and can help improve quality and productivity:

- Access to labour, education and training and knowledge development;
- Access to finance and new financial models;

- Closer customer and end user relations and process innovation;
- Professionalisation of the clients;
- Focus on new technologies, materials, smart and eco-efficient solutions and buildings;
- New service models to complement actual construction;
- Modularisation and pre-assembling;
- Ability to adjust to growing international competition
- Coordination between actors to achieve lean construction; and
- Orientation towards future growth markets outside the EU.

Achieving progress in relation to the above factors will require the involvement of not only the construction companies, but also other actors in the construction value chain from suppliers of materials to clients, financial operators, insurers and end users.

Manufacturing of construction materials

Up until the financial crisis, the Manufacturing of construction materials subsector in Europe performed well with regard to turnover, value added and employment, but its current growth prospects are less positive for the years to come. Public and private investments in construction projects are needed to help the sector overcome the crisis. The Manufacturing of construction materials subsector in Europe is also facing considerable competitiveness challenges with regards to the rising costs of energy and raw materials.

The regulatory requirements facing the sector in Europe are making it difficult for manufacturers of construction materials to compete with foreign manufacturers. Examples include regulation of energy consumption/CO2 emissions as well as strict regulation of environmental and health impacts. The lack of a level playing field at global level may result in a re-location of activities to countries outside Europe with a less strict regulatory environment.

Finally, standardisation is a key issue for the Manufacturing of construction materials subsector, and the different national standards and approval systems constitute a barrier to the realisation of the internal market for building products. The development and implementation of European regulation and standards are vital to the future development and competitiveness of the sector.

Professional construction services

The Professional construction services subsector still has to make a number of adjustments in order to fully take advantage of the future changes in markets and client demands. It is highly fragmented along national borders, and each country has its own distinct customs, regulations and culture. This presents a barrier for the companies against embarking on international activities.

According to a survey by ACE (2010), the economic outlook of European architects is very pessimistic. Thus, 65% of respondents in a representative sample indicate that the current situation is bad or very bad for architectural practices in Europe. This level of pessimism has been the same since the first survey covering the implications of the financial crisis in April 2009. Furthermore, 36% of respondents reported that they had a staff level that was much lower or lower than the level in September 2008. Nevertheless,

expectations for an increase in activity for the three months starting in April 2010 were greater than at any time since the first survey conducted by ACE in April 2009.

Despite many mergers and acquisitions in recent years, the current medium outlook of the sector is still clearly dominated by very small companies. The long-term outlook for architects will depend on how the subsector adapts to:

- Increasing focus on design for function instead of just design for form;
- The development and use of new building products and sustainability requirements.

Like in most other economic sectors, mergers and acquisitions play an increasing role for construction services companies to further develop competitiveness; but mainly for the few large operators in the subsector. This is not common practice for small companies.

Costs arising from failures in the construction process are relatively high and represent a significant risk for professional construction services. Clients have shown increased interest in and demand total solutions and privately financed initiatives which also results in increased risks. Hence, risk management is an important focal point for the subsector. Companies increasingly develop and use building information modelling systems to support project management and integration of the entire construction process.

Inertia in existing practices presents a challenge in professional construction services as innovation and digitalisation will play an increasing role in the future. Nevertheless, there are trends towards increased diversification into new services and specialisation in high value added services or special construction types (e.g. windmills, passive houses, etc.).

Large, bundled and complex contracts favour large companies and increase the need for good project management. Hence project management on behalf of the client is a significant service area for professional construction services. The large, bundled and complex contracts make it difficult for SMEs in the professional construction services sector to compete. There is a need for more focus on participation in partnerships and consortia in order to be part of this market.

Although the future growth markets are in the EU12 markets and markets outside Europe, the Professional construction services subsector is still primarily geared to operating in national and other traditional European markets. However, there are examples of international growth through primarily NGO projects or expanding with national and European clients into other international markets.

Building control bodies are also undergoing change in Europe. Although the traditional system of full public responsibility is still the most frequently used in Europe, there are more and more examples of partly public and partly private solutions as well as fully private solutions. The main advantage of moving towards private solutions is the achievement of better and more efficient building control systems. The main disadvantage is of course the resulting lack of liability

Real estate developers, an important group of clients for the construction sector, are also suffering from the impact of the financial crisis that has resulted in low demand for new buildings and homes. There are positive signs for the future. However, the withdrawal of

government stimulus packages and the question of how the financial system will handle the banks' large real estate debts give rise to some concern. Most investors will probably continue to be cautious towards development for some time to come. Green construction is expected to take up a growing share of development projects that will ultimately be launched.

4. Framework conditions affecting competitiveness

The analysis of regulatory and other framework conditions is based on desk research, interviews with sector representatives and experts as well as the country reviews carried out in January and February 2010 in which the Member States indicated priorities and key issues concerning the current and future competitiveness of the national construction sectors.

4.1 Regulatory framework conditions

European regulations and standards concerning for instance energy savings and building materials are an important aspect of the development of the internal market for construction products and services as well as drivers of change in the construction sector.

Source: Review of the construction sector in the UK based on desk research and interviews

However, compliance with regulations and standards constitutes a burden for companies in the sector, and in some countries national and/or European regulations and standards are considered barriers to growth for the national construction sectors, not least for SMEs.

In addition, administrative barriers to carrying out construction projects are considered important barriers in countries such as Bulgaria, Italy, Portugal and Lithuania. Thus, reforms to decrease administrative burdens and increase the speed of administrative procedures (e.g. approval of building projects) are important for the construction sectors in these countries. First, there are often too many rules, and national, regional and local regulations often overlap. Second, the rules are often associated with extreme regulatory and bureaucratic complexity, making it hard for small companies in particular to bear the administrative burden associated with major construction projects. Moreover, new public approaches to tendering and procurement may cause problems for SMEs with regard to participating in bids (reported by UK and Malta).

4.1.1 Industry specific standards

The Construction Product Directive adopted in 1988 aims at ensuring the free movement of all construction products within the European Union by harmonising the assessment methods of the technical performances of construction products required by national legislation. According to the directive, CE marking constitutes an important means to removing technical barriers in the European construction products sector.

Various technical committees of CEN or CENELEC are responsible for developing harmonised standards in the construction sector (hENs). About 600 harmonised standards will be available under the Construction Products Directive along with about 1500 supporting standards (test methods). CE marking is currently possible in respect of 349 European harmonised product standards (CEN, 2010). If no harmonised European standards or recognised national standards exist, and if there is no mandate for the development of a harmonised standard, a product may be approved based on a European Technical Approval (ETA). The European Organisation of Technical Approvals (EOTA) develops the guidelines for such ETAs.

Sector representatives state that the number of national implementations of the Construction Product Directive has still not reached a satisfactory level and that technical barriers to trade still exist due to national regulation and approval procedures. One barrier to implementation is the possible lack of technical expertise and financial resources in the Member States which is needed to support the continued implementation of the Construction Product Directive. A specific area that interviewees consider critical for the sector is the development of European standards for ICT in construction projects. Sector representatives also report that issues of forged CE marking on products originating from countries outside Europe are undermining the credibility of the CE marking system. Furthermore, such products may pose a threat to the health and safety of construction workers and consumers.

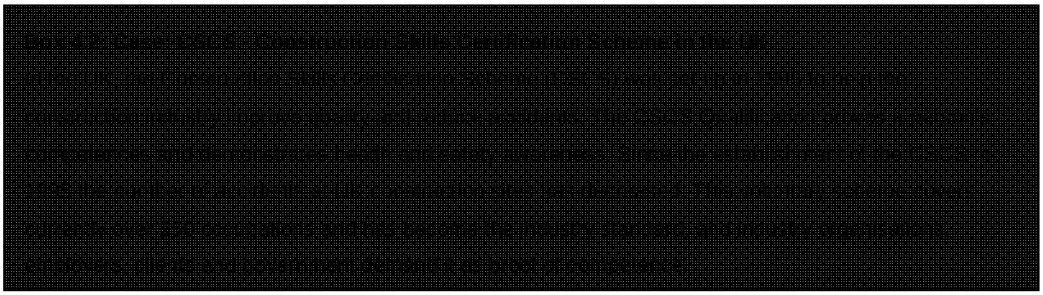
The European Commission has proposed replacing the Construction Products Directive by a new regulation aiming at removing remaining regulatory obstacles to the free movement of construction products in the European Economic Area. The proposal for a new regulation includes specific measures aimed at providing simplified access to CE marking for micro-enterprises. This will make it less costly and faster for micro-enterprises to place their products on the market than before (European Commission, 2008). The proposal has met severe criticism from the industry, arguing that such facilities for micro-enterprises might undermine the CE marking.

Eurocodes

CEN is also responsible for the development of EN Eurocodes, a series of ten European Standards providing a common approach to the design of buildings and other civil engineering works and construction products (Joint Research Centre, 2010). EN Eurocodes are developed under the guidance and co-ordination of the CEN Technical Committee 250 (CEN/TC250) "Structural Eurocodes". The structural Eurocodes are now available. They will gradually replace existing national standards, especially in the context of public procurement.

Quality issues

Enhancing the quality of construction products, processes and services is a key issue in the country reviews of Denmark, the Netherlands and Italy, and the development of European standards and use of CE marking is an important step towards ensuring the quality of work in the construction sector. However, standards for products are not sufficient to ensure the quality of work being carried out. One aspect mentioned in the review of the Italian construction sector is the lack of formal requirements for construction companies that enter the market. Moreover, the formal requirements for workers in the sector can be difficult to assess. The UK has set up a certification scheme for employees to improve quality and reduce accidents in the sector.



Source: CSCS and ConstructionSkills website

Consumer protection

Consumer protection is an issue that also concerns the construction sector. For instance, the directives on the civil liability for defective products[25] and General Product Safety[26] apply fully or partially to technical building installations. The installing company or the producer of the installed product may be found liable for any damage caused by the installation/product. Often installing companies will be unable to guarantee safety without regular inspection and maintenance (e.g. electrical installations or gas heaters) as wear and tear will increase the risk of accidents over time.

Another consumer protection area is Indoor Air Quality (IAQ) which is currently regulated and affected by a range of policies, directives and legislation such as the WHO (World Health Organisation) guidelines, the CAFE directive (ambient air quality and cleaner air for Europe), EPBD, REACH, General Product Safety and voluntary labelling schemes. The European Commission is aware that IAQ requires increased attention in the future to reduce severe negative health effects and is planning to launch a green paper to improve measures, coordination and harmonisation in the field.

4.1.2 EU competition policy

EU competition policy aims at creating an efficient internal market and is based on three pillars: merger rules, anti-trust rules and control of state aids to enterprises.

[25] http://europa.eu/legislation_summaries/consumers/consumer_safety/l32012_en.htm
[26] http://ec.europa.eu/consumers/safety/prod_legis/index_en.htm

The Commission approves most of all major mergers in the sector to prevent individual companies from attaining a dominant position on the market. In many cases, mergers are approved subject to conditions, meaning that companies, in order to obtain the final approval, are required to make adjustments to the set-up of their merger to prevent it from significantly hindering effective competition in the internal market.

The enforcement of antitrust rules is aimed at preventing price-fixing between two or more companies as well as the formation of cartels in the sector. Moreover, the Commission investigates "dominant behaviour" by large companies such as price dumping intended to remove competitors from the market. If such violations occur, the Commission has the power to fine the implicated market actors.

Source: OFT, 2009

The aim of the European Commission's control of state aid to enterprises is to ensure that government interventions do not distort competition and trade inside the EU. State aid is defined as an advantage conferred on a selective basis to undertakings by national public authorities. During the economic and financial crisis, where many states have granted financial assistance to large companies, the field has been subject to much debate.
The construction sector is also subject to considerable monitoring at the national level.

4.1.3 Services Directive

The Services Directive was adopted in 2006. The Directive's primary goal is to remove legal and administrative barriers that prevent businesses from offering their services in another country and to open up the European service sector to cross-border competition. Removing market-protecting regulations at Member State level is therefore a key component. Another main theme is to ensure mutual recognition of qualifications across borders.

The Services Directive primarily affects the professional service providers and service providing craftsmen such as plumbers and electricians in the construction sector. Other affected services include installation, maintenance and inspection activities. Apart from having a direct effect on construction sector actors, the Directive also has an indirect effect on the construction market because it affects the Real estate services sector, which constitutes one of the main groups of construction sector clients.

Only four years after its adoption, the Directive has led to a number of deregulatory activities at national level in a number of areas. One of the most important areas has been the various authorisation requirements that used to be imposed on service providers. Many of these requirements are currently in the midst of being either abolished or made

less stringent. Nevertheless, there are still a large number of authorisations applicable to service activities in many Member States.

The Service Directive also addresses the issue of authorisations required to perform certain construction services or, in some cases, to operate as a construction service provider at all. Another area addresses the so-called fixed tariffs phenomenon, which is very common in many Member States' construction markets. A number of countries have made the fixed tariffs mandatory. This is, for example, the case for architects and civil engineers in Germany. Nevertheless, there are many areas and countries where the fixed tariffs issue has not been addressed yet.

In some Member States, shareholding requirements are also currently being modified. An example is Luxembourg, where a requirement for craftsmen to hold a minimum 50% of the shares of their crafts company is reportedly in the process of being abolished. In many other countries, shareholding requirements remain quite common in the construction sector. In Belgium, the profession of architect can only be legally if the architect does not own at least 60% of the company's shares, and the remaining shares cannot be owned by persons whose profession is or may be in conflict with the architectural profession.

Other construction sector regulations addressed by the Directive include requirements concerning a minimum number of employees, territorial requirements, associational memberships, economic independence, obligations to supply other specific services jointly with the primary service, and requirements specifically applying to cross-border activities.

Service providers in the construction industry report that until now the Service Directive has had a limited effect and that the market for construction services is still highly fragmented. This is particularly due to widespread national differences in how Community measures are implemented.

4.1.4 Labour market regulation and OHS

The European Community (EC) has set some minimum requirements for Member State legislation with regard to labour rights, work organisation and Occupational Health and Safety standards (OHS). EU controlled labour legislation covers two main areas:

- Working conditions, including working time, part-time and fixed-term work, and posting of workers;
- Information and consultation of workers, including in the event of collective redundancies and transfers of undertakings.

Some specific initiatives designed to address OHS should be mentioned. These include the *Bilbao Declaration* from 2004 where six construction bodies including the European Construction Industry Federation signed the declaration, committing them to specific measures to improve the sector's safety and health standards[27]. Another example is *Council Directive 92/57/EEC*, which lays down minimum safety and health requirements for temporary or mobile construction sites, i.e., any construction site at which building or

[27] http://osha.europa.eu/en/sector/construction/index_html/declaration

civil engineering works are carried out and intends to prevent risks by establishing a chain of responsibility linking all the parties involved. Moreover, the provisions of Directive 89/391/EEC ("the framework directive") are fully applicable without prejudice to more restrictive and/or specific provisions contained in this directive.

There are, however, large variations in how successful Member States have been in relation to implementing the above measures. Spain has been particularly successful in reducing the number of onsite accidents, almost cutting the number by 50% between 2000 and 2007. Spain is, however, still among the countries with the highest number of accidents among construction workers. France, Germany, Italy and Sweden have also had great success, each reducing their incidence rate by over 30% in the same period. At the other end of the spectrum, the Netherlands has strangely doubled their number of registered accidents, going from being an OHS-frontrunner to mirroring the EU-average. Also, Ireland and Denmark have experienced a rising number of accidents in the period (Eurostat).

Community action is not limited to legislation. The Commission has widened the scope of its activities in favour of information, guidance and promotion of a healthy working environment by paying particular attention to SMEs. The EC supports many education and training programmes. With regard to labour rights and work organisation, the EU has requirements concerning collective redundancies, insolvency and transfer of undertakings, consultancy and information of workers, working hours, equal treatment and pay and posted workers. These requirements are supplemented by framework agreements between the European social partners.

Member State level

The number of regulations implemented by the EU addressing workers' health and safety has increased during the last years. At the national level, however, there are still substantial differences among the Member States, since each European country operates a distinct system of labour legislation and judicial enforcement. Below are a couple of examples from three Member States (Federation of European Employees)[28].

In Denmark, collective agreements determine most of the terms and conditions enjoyed by construction workers. Employment laws have traditionally existed to provide a framework for collective bargaining and enforce the application of resulting agreements. However, there has been a marked move away from dependence on social partner arrangements toward direct application of statutory requirements in the employment field.

Spain has a relatively modern and highly regulated labour market. The principal basis for all employment relationships is the Statute of Workers. At the age of 18 a Spanish construction worker may enter into a binding contract that gives him a wide range of protection including generous compensation for "objective" dismissal.

By continental standards, the UK operates a highly liberal construction labour market with a minimum of legislative intervention and administrative "red tape". Employment rights have taken shape around the Law of Contract and a number of statutory restraints

[28] http://www.fedee.com/natlaw.html

have been attached to this central pillar in areas such as working time, maternity rights, union rights and minimum pay. Specialist employment tribunals are empowered to hear almost all individual disputes and they are an integrated element in the civil court structure.

In some EU countries the level of Employment Protection Legislation (EPL) makes companies less prone to absorbing structural changes in the market such as the current economic climate. The structural adaption of the labour force to cut operation costs that has recently been witnessed across the whole of Europe is very significant in the construction industry. In countries with a high degree of EPL, the current economic climate can be a major disadvantage for construction companies as labour costs will be extremely high compared to the amount of available work. However, without a perceived level of security it can be difficult to attract and retain skilled workers.

To sum up, the impact of labour market regulation and OHS on the competitiveness of the construction sector differs widely across Member States in terms of level of implementation and the degree of EPL. Overall, implementation of labour market regulations and occupational health and safety standards are associated with short-term costs. At the same time, it is designed to ensure fewer accidents at the sites and hence reduce costs associated with accidents and court cases. Improving health and safety is therefore a major issue for the construction sector, not just for humane reasons but also economically.

4.1.5 Environmental regulations

In recent years, the European Union has adopted a range of environmental regulations affecting the construction sector. On the one hand, these initiatives push the sector in a green direction, which could become an advantage in a global market that is increasingly demanding low-energy construction solutions. On the other hand, more regulation is often associated with higher construction costs due to more expensive procedures and materials. Although the financial climate in Europe is slowly improving and people are generally willing to invest in environmentally friendly solutions, clients do not always have sufficient financial resources. This section highlights some environmental regulations that have the heaviest impact on the competitiveness of the European construction sector.

One initiative is the EU's climate and energy objectives of reducing greenhouse gas emissions from buildings by 20% by the year 2020. On 18 May 2010, an amendment of the EU Directive on energy performance of buildings was adopted. Under this Directive, Member States must apply minimum requirements as regards the energy performance of new and existing buildings, ensure the certification of their energy performance and demand regular inspections of boilers and air conditioning systems in buildings. National legislation adopted in conjunction with this agenda has set out specific requirements for new buildings and renovation projects, affecting design, engineering as well as choice of materials. Overall, and particularly in the current transition period, these regulations have resulted in higher costs for Onsite construction companies and have changed the dynamics of the market for building materials.

Ecodesign[29] is another type of regulation affecting the European construction sector. The initiative takes into account the total use of energy in a product's lifecycle and encourages Member States to set requirements for products allowed into the market based on these standards and requirements. Thus, contractors in some countries are prohibited from using products with a high life-cycle energy use. This limits the range and increases the price of products available to contractors particularly with regard to lighting systems, power supply mechanisms, heating systems, water pumps, etc.

The Ecolabel initiative, which labels consumer products that achieve higher environmental performance with the famous green EU-flower, has gradually expanded to include many products used in construction, such as paint, heat pumps and floor coverings. The Commission encourages public entities to make ecolabelling of products - or lack hereof - a selection criteria in their public procurement processes. To construction sector actors, this makes use of ecolabelled products and components attractive. The initiative has received some criticism for only labelling individual construction products instead of the entire construction as a whole. It is argued, that the performance of the construction product in a building depends on how it is installed in the system. However, the European Commission is in the process of developing and introducing Ecolabels for complete constructions (initial plans focus on office buildings). It is expected that this will lead to Ecolabels ready to be implemented by 2012 initially for office buildings.

The European Technology Action Plan (ETAP) was implemented in 2004 to promote eco-innovation and promote environmental technologies. For the construction sector, the plan includes a number of political initiatives including increased focus on innovation and research, setting performance targets, mobilisation of grants and loans, market-based instruments and the fostering of green public procurement (cf. Section 4.1.6).

The Waste Framework Directive adopted by the European Commission in 2006 requires Member States to establish a network of disposal facilities and competent authorities responsible for issuing authorisations and licences for waste management. The key focus of the Directive in relation to the construction sector is to ensure disposal of construction and demolition waste without endangering human health and the environment. Great emphasis is also placed on the prevention, reduction, re-use and recycling of construction waste. The goal is to recover 70% of construction and demolition waste by 2020.

The Water Framework Directive was adopted in 2000. Since then, a number of specific pieces of legislation have been implemented with the overall goal of addressing the risk of water pollution. For the construction industry this has probably had the largest impact on producers of construction materials, since it has tightened regulations on waste (including wastewater), emissions (chemicals in water) and energy use.

Other European environmental initiatives with a substantial impact on the construction sector (at least in some countries) are the TC350 and TC351 standardisation efforts currently under development. The first will set out common methodologies for assessment of environmental and lifecycle cost performance of buildings and quantifiable

[29] http://ec.europa.eu/energy/efficiency/ecodesign/eco_design_en.htm

performance aspects of health and comfort of buildings. The latter will set a common standard regarding release of dangerous substances.

At Member State level, a growing number of environmental initiatives have been launched both independently and in accordance with EU legislation over the last couple of years. In France, the Grenelle building plan" was launched in 2009 with the overall goal of deploying measures to reduce energy consumption and greenhouse gas emissions of buildings. The plan includes ambitious goals in three main areas: construction of new buildings, renovations, and "green growth". Until now, the plan has resulted in the granting of 75,000 interest free loans for home renovations and the renovation of 3,500 social housing homes (cf. case study on Plan Bâtiment Grenelle). In the UK, sustainability has been included as one of six key principles in the "2012 Construction Commitments" outlining the key priorities of the sector until 2012. This has led to a number of ambitious green construction initiatives with an eye to establishing the country as a leading nation in this area leading up to the 2012 Olympics (cf. case study 2012 Construction Commitments).

Successful implementation of environmental regulations like the ones mentioned above greatly depends on political support as well as collaboration with industry to set realistic targets. The road to implementation of the British "Zero Carbon 2016" initiative (cf. case study 2.7 in Annex 1) is a good example: In this case, a combination of resistance from the industry due to unrealistic targets, the recession and the end of political support has stalled the initiative. The initiative was agreed in 2007, but only a limited number of elements have been implemented. The new British government is currently reviewing the initiative.

Another potential barrier to the EU's sustainability agenda is what critics call a lack of policy coherence, where EU-policies in other areas actually have a harmful effect on the environment and hence the EU's own green agenda. This is for example the case with the EU's structural funds which have been criticised for indirectly fostering increased CO_2 emissions. Although the funds have contributed to higher productivity and employment in the Union's poorest regions, the boost has come through non-green channels, and has thus had a negative effect on the environment. Sceptics are concerned that only 2% of the funds will be used for sustainable development, whereas a large part of the remaining funds will be spent on traditional infrastructure such as roads and on supporting industrial development, which in both instances increases greenhouse-gas emissions. Although this particular issue has received increased attention in recent years, there is still a substantial need for improving general policy coherence in the field of sustainability.

All the above initiatives are designed to make the European construction sector greener and geared towards tackling the environmental challenges of the future. In the short run, however, many of them could possibly have a substantial negative impact on companies in the sector. In many instances, the cost of implementing the prescribed measures can be passed on to the client, but in others, and particularly in times of financial instability, the client or end-user is neither willing nor able to pay. Consequently, the construction companies often have to bear the cost, which limits their competitive ability. While policy-makers are formulating policies to ease the financial burden of the sector,

construction actors across Europe are adapting their business strategies to help meet the overall goals of the EU's energy objectives.

4.1.6 Green Public Procurement

According to the EC DG ENV website[30], Green Public Procurement (GPP) means that "public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life-cycle compared to goods, services and works with the same primary function that would otherwise be procured".

The EC published the Communication "Public procurement for a better environment" on 16 July 2008. The Communication aims to provide guidance on how to reduce the environmental impact caused by public sector consumption and how to use GPP to stimulate innovation in environmental technologies, products and services. The EU level target was that by 2010 50% of all public tendering procedures should be green. The legal framework for the policy is the EU Public Procurement Directive (the 2004 Directive provided possibilities for including environmental criteria in the contract award process).

Since then, the European Commission has provided tools and support to address the main obstacles to achieving the target, including:

- Setting common GPP criteria;
- Encouraging publication of information on life-cycle assessment (LCA) of products;
- Increasing certainty about legal possibilities to include environmental criteria in tender documents; and
- Establishing support for the promotion and implementation of GPP through a political target linked to indicators and monitoring. In addition, "Buying Green", a GPP handbook, has been launched.

ICLEI produced a background report in 2008 (ICLEI, 2008). It supplemented the GPP product sheet for construction to help public authorities incorporate environmental criteria in their tendering procedures for construction. The report also provided further details on core (minimum) and comprehensive levels of criteria.

July 2010 saw the completion and launch of common criteria together with technical background reports for seven construction product groups, including wall panels, combine heat and power, insulation and windows.

In 2003, the European Commission encouraged Member States to draw up National Action Plans (NAPs) for greening their public procurement. The NAPs were to assess the state of GPP and set ambitious targets for a three-year period. By July 2010, 20 countries had a NAP in place, three countries had their NAP in process of adoption and four countries were preparing their NAP. Whereas 21 countries have adopted the criteria, only 18 have actually initiated training of staff in green public procurement, and only 11 countries have initiated monitoring of criteria adherence.

[30] European Commission Website – "What is GPP?", http://ec.europa.eu/environment/gpp/what_en.htm

A study of public procurement contracts in 2006 and 2007 for seven EU countries by PriceWaterhouseCoopers (PriceWaterhouseCoopers, 2009b) suggests that many improvements can be made in trying to achieve the GPP target, the 20-20-20 carbon footprint, and energy efficiency targets.

For most of the seven countries, the GPP levels are relatively low at around 20% in terms of value and number of public procurement contracts. The main exception was the UK respondents that indicated GPP in more than 75% of the procurement value and more than 50% of total number of procurement contracts including both the core green components as well as the more comprehensive green component (specifying minimum energy demand to be provided by localised renewable energy sources). The low level of GPP is largely caused by most of the examined contracts not being guaranteed free of hazardous materials. With regard to the contracts that do comply with green criterion it appears that most buildings have been designed to reduce the energy consumption, and this has primarily been achieved through double glazed windows and insulation.

The PWC study also examined the financial impact of GPP per functional unit and concluded that in relation to construction, the total cost reduction per functional unit (both core green and comprehensive green) would be 10% measured in the cost difference between a green product and a non-green product taking into account purchasing, operational and disposal costs (lifecycle costing). In other words, the report concluded that a lifecycle cost reduction could be achieved by choosing green construction products. One backside to GPP is that it tends to favour larger companies, who have the necessary resources to immediately invest in green technologies and new associated modes of production. Some SME's, on the other hand, might suffer from the increased use of GPP procurement strategies. At policy level such side effects can potentially be counterbalanced through different measures. The challenge thus lies in ensuring the necessary coherence between GPP policies and initiatives to improve conditions for SME's, such as the Small Business Act. This has among its main principles to "facilitate SMEs' participation in public procurement" and to "enable SMEs to turn environmental challenges into opportunities".

Another more drastic approach to environmentally friendly public procurement is Sustainable Public Procurement (SPP). According to the EC ENV website, "Sustainable Public Procurement (SPP) means that public authorities seek to achieve the appropriate balance between the three pillars of sustainable development - economic, social and environmental - when procuring goods, services or works at all stages of the project." In contrast to GPP, SPP thus also includes economic and social conditions in the contract awarding process. Although SPP is currently less common than its GPP counterpart, it is increasingly being considered by public authorities throughout Europe.

4.1.7 Intellectual property rights

Intellectual Property Rights are mainly an issue for architects, engineering companies and producers of building materials. IPR was mentioned as an issue in interviews with representatives of the engineering consultancy sector. Several engineering consultancy companies have taken out patents to protect their IPR. Examples are decentralised sanitation for hospitals and new ways of purifying water.

Two of the general measures for protecting European companies in relation to Intellectual Property Rights in Europe are:

- Directive 98/71EC, i.e. the directive on design protection– exclusive rights to design;
- Directive 2004/48/EC, i.e. the IPR enforcement directive (IPRED) – action against counterfeiting and piracy.

Directive 98/71EC ensures that the holder of a registered design right has the exclusive right to the design, and the IPR enforcement directive (IPRED) requires all Member States to apply effective, dissuasive, and proportionate remedies and penalties against those engaged in counterfeiting and piracy.

In relation to the construction industry, these directives could provide an incentive to increase investment in innovation through patents and thereby increase the competitiveness of the construction companies. There is a particularly large potential for this in areas such as digital construction, eco-efficiency, or the application of nanotechnology (surfaces). In reality, there have been many obstacles to successful implementation and use of such measures. Public institutions have generally been cautious concerning the risks involved, and there are substantial challenges in deciding whether piracy or counterfeiting activity has in fact taken place in a given case.

Successful implementation of the above-mentioned directives also holds the potential to decrease the amount of counterfeited building materials/products from outside the EU, especially relatively expensive easy-to-copy products, (e.g., complex window systems). Moreover, designs from European architects and engineering consultancies are often copied and used outside the EU.

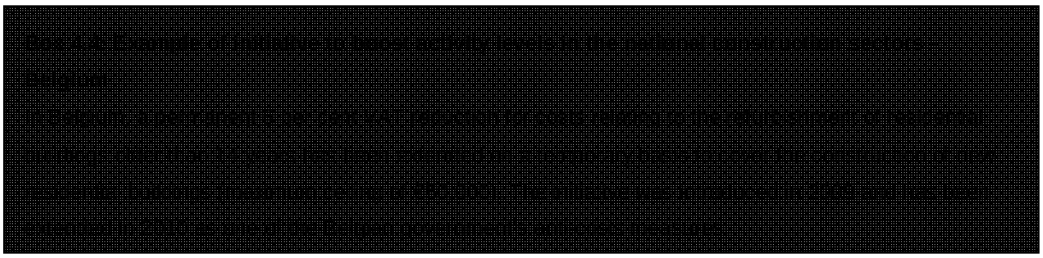
4.2 Other framework conditions

This chapter analyses the impact of non-regulatory framework conditions within the European construction sector. It specifically analyses the impact of eight such conditions on the competitiveness of the European construction sector. They are economic developments and the financial crisis, market structure, insurance and liability, research and development policies, levels of skills and access to labour, access to third countries and access to EU market, access to finance, and finally the cost of energy and raw materials.

4.2.1 Economic developments and the financial crisis

The level of private and public investments in construction projects is a critical factor for the level of activity in the sector. The financial crisis, which started in 2008, has led to a drop in private investments. This has reduced the demand for construction products and services and resulted in an increase in sectoral unemployment across all European countries. The financial crisis has also led to a re-structuring of the sector, where a growing number of mergers and acquisitions are leading to large units dominating the sector and offering a wide spectrum of products and services. In the long term, this may increase the productivity of market players, but it could also have a negative impact on

the overall competition in Europe if too few players end up dominating the markets. The crisis has made many European countries increase public investments in building and infrastructure projects to keep up the level of activity and thus employment in their national construction sectors, cf. box 4.4. It must, however, be noted, that not all countries who have announced plans to increase public spending on infrastructure and other construction projects have actually done so.



Source: Reviews of national construction sectors based on desk research and interviews

In countries such as Greece and Portugal, the massive public deficits have made it difficult for their governments to increase public investments in construction projects to counter the negative economic and social effects of the financial crisis. Other European countries are also in the process of cutting back public spending. There is a high level of uncertainty concerning the future level of private and public investments in construction projects, and eventually an increase in the level of private investments will be vital to keep up activity levels in the sector.

4.2.2 Market structure

The construction sector in Europe is characterised by a high number of SMEs, a low level of cross-border activity and extensive use of subcontracting throughout the design and building processes.

These traits are highly interrelated and give rise to a multitude of commonly disjointed, yet very competitive, price-based markets with severe implications for the individual enterprise's ability to absorb knowledge and information, utilise new technologies and take overall responsibility for the success of the final product or service.

Three relevant market contexts can be mentioned:

- Leading designers, consultants and contractors operate in a global marketplace.
- The great majority of construction firms are not in competition with firms outside the EU.
- The smallest construction firms have competitors in the informal economy and the existence of this informal economy has implications for the development of a sustainable European economy, with good working conditions, etc.

In general, most construction firms fail to profit from their supply chain or invest in strategic capacity. Few companies have the purchasing power to utilise their supply chains, or the resources to invest in ICT, HR-development or offsite production capacity to improve performance. Those who have the purchasing power, often fail to reach their potential, by not buying smartly or adjusting the size of their demand to the supply

market they are facing. Only a handful of construction firms offer a vertically integrated approach from design to managed handover.

Internationalization

Actors in the European construction market generally operate at the local, regional and in some cases, national level. While true of the construction sector in general, the above characterisation applies best to the principal markets for actual construction and maintenance activities. The small markets for knowledge-intensive services (design, management, planning concepts, and managerial and engineering services) are increasingly becoming internationalised if not globalised in many instances. The same is the case in the market for building materials, particularly on the supply side. , Large multinational groups are already targeting an international market, especially in domains such as steel and glass.

Even within onsite civil engineering and building work, international markets exist today for expert manual work teams who travel from construction site to construction site offering their unique competences at handling highly specialised construction functions and materials (for instance in relation to tunnel drilling or bridge building). Moreover, the enlargement of the EU has caused a temporary internationalisation of the most labour intensive market, i.e. the market for building completion, which will presumably persist until wages align between new and old Member States.

Consolidation

At the same time, there has been a trend at the top of the construction sector towards consolidation through mergers and acquisition and the formation of very large enterprises or consortia offering the full range of services including financing of construction activities and facility management of the final product.

This trend at least in part is spurred by the increasing prevalence of requirements for a broad range of qualifications and a solid financial base in order to interact with certain clients. Public clients in particular are increasingly demanding that contractors take on a share of the risks through Public Private Partnerships (PPPs) and Build-Own-Operate-Transfer (BOOT) agreements. Another reason for the movement towards consolidation at the top of the construction sector is the desire to achieve efficiency gains through vertical supply chain integration and the application of lean construction or other similar flow management and planning concepts. Although rarely comprehensive enough to provide complete in-house control of the entire construction process, in many instances consolidation, opens up the possibility in enterprises for collaboration with important partners up and down the supply chain and for engaging in project partnering, strategic partnering, alliances, framework agreements, construction consortia, etc.

Subcontracting

Subcontracting is a widespread phenomenon in the European construction sector, which is a natural consequence of its overall character. The type of work undertaken by the sector differs widely with regard to size, function, form, production method and materials used. Therefore, many different types of services and specialists are often required, making subcontracting to smaller specialised entities an attractive option. For the small and specialised companies in the sector the advantages are obvious, and for the large

construction firms, subcontracting enables them to maintain greater flexibility and handle the many variations in their orders. Another clear upside of subcontracting is that the local knowledge and expertise of small companies can be utilised in a European market where national, regional and local customs and regulations still differ substantially. Additionally, this minimises the high costs associated with labour transfers. In comparison with other sectors, companies in the European construction industry use a substantial amount of subcontracting with 45% of companies either acting as subcontractors or contracting parties (EIM & IKEI, 2009:85-101).

Corruption and regulation

Particularly in Italy and a number of Eastern European countries, corruption in the construction industry is reported as major problem. "Not only does it raise moral and political concerns, undermines good governance and distorts international competition, it has negative effects on business, since it adversely affects works quality, economic efficiency and potentially damages the image and reputation of the whole construction industry" (FIEC & EIC, 2009:1).

A number of factors make the construction industry more susceptible to corruption than other sectors:

- Lack of transparency in terms overhead recovery, contingency allowances and profit margins;
- Pressures of the competitive tendering process;
- Large-scale contracts often for the public sector and frequently in new emerging markets; and
- Involvement of complex supply chains.

According to the global economic crime survey from PWC[31] for the engineering and construction sector based on responses from 226 respondents in 43 countries, 24% of EU companies experienced economic crime over the last year (2009). Furthermore, sophisticated crimes, such as accounting fraud and bribery and corruption, are on the increase. The survey also found that bribery and corruption are more prevalent in the engineering and construction sector than in other economic sectors. 29% of those reporting crimes within the engineering and construction sector were also impacted by it. The same proportion for all business sectors was 13%. The PWC survey found that whilst the financial impact of fraud was consistent with other sectors, employee morale is more damaged in the engineering and construction sector than in other sectors. Respondents indicated that over a third of engineering and construction companies had not performed a fraud risk assessment in the last twelve months and another third had not increased the frequency of such reviews. The majority (69%) of reported economic crime in the engineering and construction sector is committed within organisations.

In a position paper on the corruption issue, construction sector representatives FIEC and EIC underlines the point that contracting authorities and governments are just as big a part of the problem as the construction companies themselves. The paper appeals for implementing stronger anti-corruption measures, primarily by creating more transparent procurement frameworks (FIEC & EIC, 2009).

[31] PriceWaterhouseCoopers (2010) Global economic crime survey – Engineering and construction sector summary, March 2010.

4.2.3 Insurance and liability

Insurance and liability schemes play an important role in the European construction sector by providing security to companies involved in the construction process as well as their clients. Although there is extreme diversity of construction liability and insurance regimes across the 27 EU Member States, some general tendencies can be identified.

Generally, we can distinguish between two main types of liability (Eurofound, 2008):

1. *Joint and several liability*. This type of liability only applies at one level of the construction consortium. This means that only the subcontractor and his direct superior contractor can be held financially liable in case the subcontractor fails to fulfil his payment obligations.
2. *Chain liability*. In consortiums consisting of multiple layers of contractor-subcontractor relationships, a chain liability scheme ensures that the entire chain can be held liable for the debt of the subcontractor(s). Different types of chain liability schemes are seen in a number of countries (e.g., Finland, Germany, Italy, the Netherlands and Spain).

Insurance schemes covering latent defects discovered within ten years from the completion of construction are becoming increasingly common – particularly in the housing sector. In six countries (France, Spain, Sweden, Denmark, Italy and Finland) such schemes are compulsory. In some countries, European construction clients are also protected against the risk of failure or insolvency of the builder before construction has been completed.

The increasing need for additional security and guarantees among the construction companies has three primary causes. First, construction projects by nature involve large investments and high risks. The risk of insolvency is generally high in the construction sector and particularly in the current economic landscape. Second, the ongoing evolution of sustainable construction often involves risky investments in innovation, R&D and implementation, and this makes financial security a key priority. Third, whereas the increasingly popular *in solidum* schemes, where the consequences of the failure of one of the consortium members are transferred to the remaining participants, are designed to protect the purchasers of construction services, they sometimes present an additional risk to the other consortium members due to the high risk of insolvency in the sector (Elios, 2010).

Efficient insurance schemes benefit both contractors and clients. Clients particularly benefit from the transfer of risk to a third party and from increased efficiency and quality in the construction process. In most cases, efficient schemes lead to closer monitoring of both project management, the construction process itself as well as the partners involved, leading to higher quality construction. A single insurance policy for all parties involved in a construction project is proven to foster a more coherent construction team with shared interests. In schemes where the premium is decided based on adherence to good standards and the track records of the construction companies involved, the companies are given substantial incentives to deliver a high level of quality in their work.

Most Member States have preventive tools that seek to diminish liability. These tools can generally be divided into measures aimed at checking the general reliability of the subcontractor, and measures that seek to guarantee the payment of wages, social security contributions and wage taxes. The sanctions enforced on parties that do not abide with the liability rules typically include back-payment obligations, fines and other penalties. When it comes to foreign subcontractors, enforcing such sanctions generally cause problems. Such problems are typically caused by language problems, non-transparent or inaccessible legislative information and difficulties in proving abuses and problems in cross-border judicial proceedings (Eurofound, 2008)

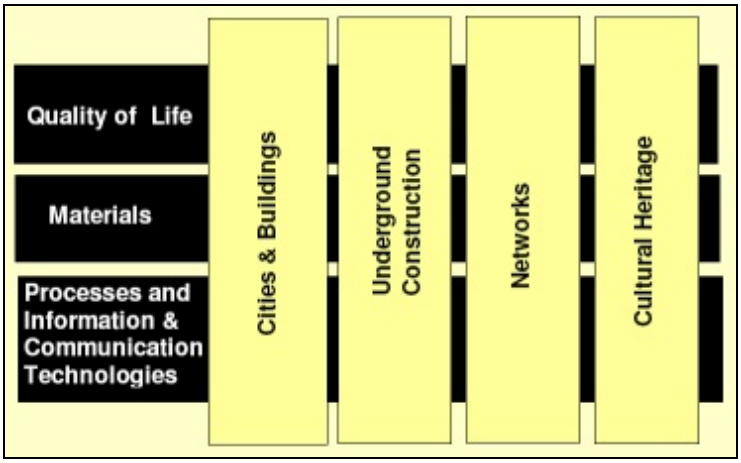
4.2.4 Research and development policies

Technological development drives change in the construction sector as research and development (R&D) activities lead to innovation and new technologies. However, the pace at which these developments are integrated and implemented in the sector, particularly among the small companies, is very slow. The main barriers to unfolding the potential of these technological developments are awareness, knowledge, competences among construction companies, and incentives (European Foundation for the Improvement of Living and Working Conditions, 2005).

European construction technology platform

The establishment of the European Construction Technology Platform is an important step towards improving the competitiveness of the construction sector through developing new research, development and innovation (R&D&I) strategies[32]. The platform currently has 130 member organisations spanning from SMEs to large companies, universities, research centres and associations. There are 26 national platforms. Their role is to address the future needs of the built environment, and in particular, the challenge of innovation and industry transformation in the construction sector. There are seven focus areas:

Figure 4.1: The seven focus areas from the European Construction Technology Platform



Source:European Construction Technology Platform website: http://www.ectp.org/presentation.asp#General%20structure

[32] European Construction Technology Platform website: http://www.ectp.org

The work of the ECTP has resulted in a vision for 2030 for the construction industry, a strategic research agenda and nine priorities:

- Technologies for Healthy, Safe, Accessible and Stimulating Indoor Environments for All;
- Innovative Use of Underground Space;
- New Technologies, Concepts and High-tech Materials for Efficient and Clean Buildings;
- Reduce Environmental and Man-made Impacts of Built Environment and Cities;
- Sustainable Management of Transports and Utilities Networks;
- A Living Cultural Heritage for an Attractive Europe;
- Improve Safety and Security within the Construction Sector;
- New Integrated Processes for the Construction Sector;
- High Added Value Construction Materials.

Recently two extra priorities were added:

- Nanotechnologies for Materials in Construction;
- Technologies and Engineering for Innovative Added-value Services Offered by SMEs in the Construction Sector.

National initiatives to boost R&D

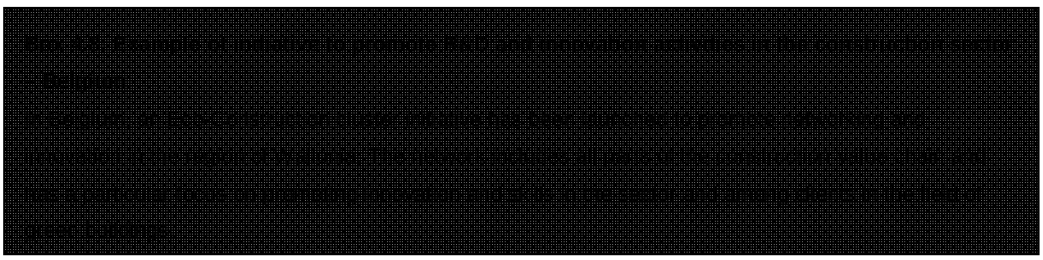
In the country reviews, many Member States point out the need to boost R&D activities to support the future competitiveness of the national construction sectors, and particularly to promote innovation in sustainable construction. Particular action has been taken to try to increase the involvement of SMEs in R&D activities. Although about 80% of the construction industry's output comes from small or medium-sized companies, R&D activities are mostly carried out by large enterprises in the market. This is because small companies do not have the necessary financial capacity to carry out R&D projects even on a small scale. The primary aim of Member State R&D policies has therefore been to establish networks for small market actors and to set up financial support schemes for collaborative R&D activities. Several initiatives have already been launched at national level, cf. boxes 4.6 and 4.7 below:

Source: Review of the Finnish construction sector based on desk research and interviews

Source: Wirtschaftskammer Österreich (2009); *Review of the Austrian construction sector based on desk research and interviews.*

Initiatives to promote clustering

Initiatives have been taken to promote clusters in the construction sector. An example of such as initiative is REG CON[33], which was established in 2008 and financed by the European Commission. The intention was to strengthen the research potential of European regions through advancement of the "R&D based clustering" in the construction sector. The main reason for this initiative was the sector's lacking behind in terms of absorbing innovation. Six clusters from Slovenia, Spain, Greece, Finland and Poland, all focusing on innovation, participate in the project. We also see a tendency towards establishment of clusters focusing on the greening of the construction industry, such as le *Pôle Génie Civil Ecoconstruction* in France and the green building clusters of Lower Austria and Wallonia.



Source: The Ecobuilding Cluster website: http://clusters.wallonie.be/ecoconstruction/en/?CACHE=OFF

4.2.5 Levels of skills and access to labour

The access to labour situation has changed dramatically following the financial crisis, i.e., from undersupply to oversupply of labour, leading to a rise in sectoral unemployment levels. Unemployment causes socio-economic problems and has significant negative impacts on the future employability of workers. In some countries, such as Slovakia and Lithuania, a substantial share of the domestic workforce has left the country to work in other countries causing a shortage of workers in the home market while at the same time increasing risks of social dumping in the destination countries.[34] Many of the workers are now returning home causing a rise in domestic unemployment levels. In countries such as Austria, re-skilling of workers in the construction sector for work in other sectors (e.g.,

[33] The REG CON website: www.regcon.org

[34] Reported in the country reviews of Slovakia and Lithuania carried out in January and February 2010

public healthcare) is mentioned as one of the challenges relating to increase in unemployment levels[35].

According to sector representatives at European and national levels, when the economy eventually picks up again and demographic factors cause a reduction in the European workforce, access to labour may again turn into a barrier to growth in the national construction sectors. Moreover, an issue relating to the future skills and employability of the national workforce is the quality of the national education and training systems. A number of countries (such as Hungary, Germany, Romania and Lithuania) indicate that improving the quality and performance of their current education and training systems is needed to ensure that future employees in the construction sector are able to meet the demands for skills[36].

A study for the European Commission completed in January 2009 on the future skills requirements of the European Construction Sector identified the following skills to be especially important in the future:

Planning and management skills

Construction projects will require more advanced planning and management skills at management level and among workers at site level. Work organisation in the construction sector will increasingly be characterised by self-governing teams at site level that plan construction activities with greater autonomy in the implementation of tasks. Service-mindedness, insight into other trades involved in a construction project, and customer orientation will become more important. Planning and management in construction will also require good communication skills in relation to colleagues and project partners.

'Below-management skills' – demarcation of trades and multi-skilling

With regard to skilled workers (e.g. bricklayers, carpenters, electricians, and roofers), a foresight study from the UK (CITB, 2003) indicated a general shift from strictly demarcated trades towards a more generalist, multi-skilled occupational profile. A Danish study on sector dynamics and skills demands in the construction sector has reached similar conclusions (Danish Technological Institute, 2009).

The skilled workers in the construction sector will increasingly need a broader set of skills to cooperate efficiently across occupations. This includes functional literacy, numeracy, and communication skills as well as ICT skills to improve productivity through efficient deployment of ICT through the whole construction process.

Sustainable construction skills

The political and societal demands for sustainable solutions in the construction sector will most likely impact the future skills requirements at all stages of the construction process. In the pre-design phase, the workforce will be required to use analytical and planning tools to assess and balance the environmental, economic and legal requirements specific to a construction project. In the design phase designers will need to consider energy, recycling of materials, water and waste management embedded in the proposed design. In

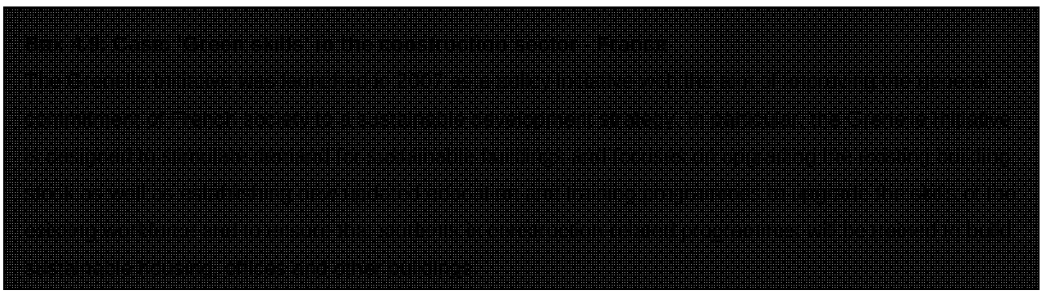
[35] Reported in the country review of Austria carried out in January and February 2010

[36] Reported in the country reviews of Hungary, Germany, Romania and Lithuania carried out in January and February 2010

the contracting phase, contractors must be able to specify and document how they intend to fulfil specifications to secure environmentally friendly products and services at competitive prices.

Throughout the construction process, the management must develop skills to adopt sustainable practices for onsite operations and be able to organise the logistics of the construction process to minimise the environmental impact. The ability to plan and manage the reuse of materials from demolition will also be important.

The skills needs relating to sustainable construction/eco-construction are being addressed in a number of European countries, and the French Grenelle Initiative in France is considered among the good practice cases that may inspire actions in other European countries:



Source: Grenelle website: http://www.legrenelle-environnement.fr/grenelle-environnement/spip.php?rubrique112

Adjusting skills to new contracting models

The future workforce of the European construction industry should also be able to embrace and exploit the new types of contracting models gaining ground in the global construction market. Long-term and more holistic contractual arrangements such as PPP present new skills demands for the construction market actors compared to traditional short-term involvement. Companies must to be able to make better use of the competitive advantages of a more integrated construction process and an increasingly performance-based contracting environment.

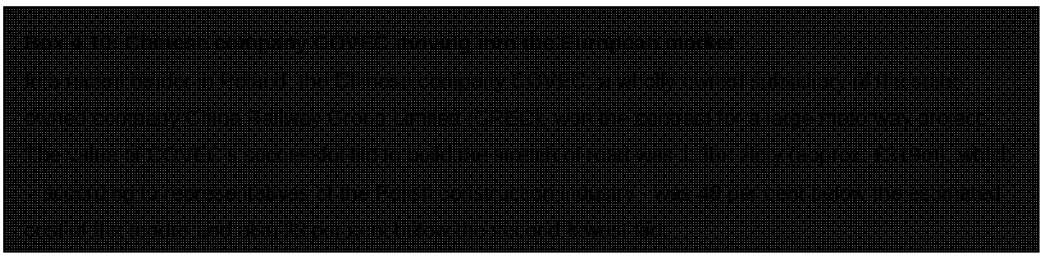
Skills and new technologies

After the current financial crisis, the construction sector is likely to experience difficulties in recruiting an adequate workforce to the sector. Adoption of new technology and new practices is an approach to reducing the dependence on labour and will become essential for the development of the sector's competitiveness and productivity. There are new technological opportunities, and the use of ICT in the construction process is a key field of technological development that holds great potential for the construction sector, offering new ways of interaction and communication in trade, construction processes, and monitoring of materials.

4.2.6 Access to third countries and access to EU market

In order to ensure that Europe has a competitive construction industry, European actors must be able to compete on fair terms in markets outside the EU, just as well as third country construction companies should function on level terms with European companies on the European market.

A long-term competitiveness issue concerns market access and fair competition in markets in and outside Europe. For instance, representatives of the European construction sector have complained to the European Commission that the access to the public procurement market in China is restricted for European contractors. Moreover, according to the representatives of the sector, Chinese companies are competing for contracts in the European market on unfair terms due to subsidies provided by the Chinese government to these companies, cf. Box 4.10:



Source: EU Observer website: http://euobserver.com/884/29215

When it comes to bidding for projects in foreign markets, a common problem is that non-OECD countries may operate free from EU or OECD environmental, ethical, financial and social regulations. Their European counterparts still have to comply with these regulations. Particularly Africa and the BRIC countries (Brazil, Russia, India and China) are seen as great potential markets for European construction firms. However, European contractors tend to shy away from bidding in these markets. This is illustrated by the fact that European construction companies, even though their income from international activities increased by over 60% between 2000 and 2007, experienced a 5% decrease in income from activities in Africa in the same period.

4.2.7 Access to finance

Access to finance is another important factor that has an important impact on the competitiveness of the European construction sector. The European Central bank has conducted a 3-round survey (European Central Bank 2010) of SMEs covering the period from January 2009 to September 2010 to assess SMEs' access to finance in the EU. The survey assessed the income and profits situation of SMEs.

Both in the first and second halves of 2009 the net per centage of SMEs reporting a decrease in turnover was highest in the construction and industry sectors. In the first half of 2010, the industry sector had turned the decrease to a 14% increase, whereas the construction sector as the only surveyed sector continued to experience decreasing turnovers (19%). In addition, the construction sector has been affected by the adverse situation in housing markets in several European countries. The net per centage of SMEs reporting a decline in profit has remained high and almost unchanged since the beginning of 2009, and there are no immediate signs of improvement in this area. In industry, things are beginning to turn around (ECB 2010).

Despite of the continued struggle to raise income levels, the need for bank loans has risen much less in the construction sector from 2009 to 2010 (23% in second half of 2009 to 6% in first half of 2010). The same tendency can be observed in other sectors, where the

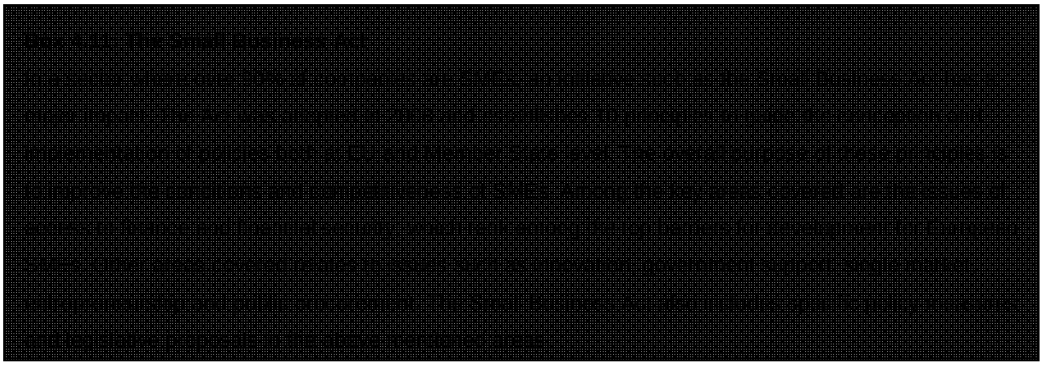
demand for bank loans has risen minimally and significantly less compared to the first and second half of 2009. Although the gap has been significantly reduced, the construction sector continues to be the sector reporting the highest increase in the need for bank loans (ibid.).

Throughout 2009 and the first half of 2010, SMEs in the construction sector were the most pessimistic with regard to the availability of bank loans. Throughout 2009 just under half of the SMEs in the construction sector reported a drop in the availability of bank loans. Although this number dropped significantly in the first half of 2010, the construction sector is still the sector reporting the highest decrease in available bank loans.

The negative expectations seem justified when looking at loan application outcomes, where only 55% of applications were granted in full. While the majority of SMEs in all sectors received the entire amount of the bank loan they had requested, SMEs in the construction and services sectors were the least successful when applying for a bank loan. In the construction sector, 13% of the SMEs had their loan applications rejected. 20% of the SMEs had their loan applications granted only in part, and 8% had their applications granted but at a too high cost. These outcomes may be related to a more negative assessment of the development of the firms' own capital situation in these two sectors compared with the industry and trade sectors.

With regard to expectations for the last part of 2010, SMEs in the construction sectors are slightly more pessimistic about the availability of bank loans than SMEs in the industry, trade and services sectors. Even though actual bank loan availability in the first half of 2010 did not deteriorate nearly as much as in 2009, the expectations for the next six months are even more negative than in the recent past. This clearly indicates that whereas the financial availability is improving and the sector appears to be showing early signs of recovery in terms of financial availability, company expectations remain low (ibid.).

In terms of geography, the survey only covers eleven Euro Zone countries. IT found that the income and profit situation was worst in Spain and Italy followed by other Euro Zone countries. France and Germany have completely turned things round. In the first and second half of 2009 the majority of respondents in France and Germany reported falling income and profits. However, in the first half of 2010 a significant majority of respondents reported rising income and profits. The need for bank loans was also more predominant in Italy and Spain and less so in France, Germany and other countries. In France and other countries in general, the demand for bank loans has even started to drop. The lowest availability of bank loans was found in Spain, Germany and Italy, whereas in France, the availability was slightly higher than the Eurozone average. In Spain, only 52 of every 100 firms applying for a bank loan received the loan in full in the first half of 2010 compared with 75% in France. Significant proportions of SMEs in Spain and other Euro Zone countries expected a further deterioration in access to loans in the second half of 2010, whereas the majority of SMEs in Germany, Italy and France expected improvements (ibid.).



Source: European Commission, 2008d

With deterioration in turnover and profits and very stringent access to loans, the financial crisis has made it difficult for many of the SMEs in the European construction sector to invest and develop or even survive. Member State governments have taken different initiatives to address these problems. These initiatives include:

- Reduction of VAT on building and refurbishment work (e.g. in Belgium);
- Postponing payment of VAT e (e.g. in Denmark);
- Setting up special export guarantees for SMEs including building material producers (e.g. in Latvia);
- Setting up special loans for SMEs.

Some of these initiatives are detailed in the annexed case studies (cf. e.g. the Belgian and Austrian case studies).

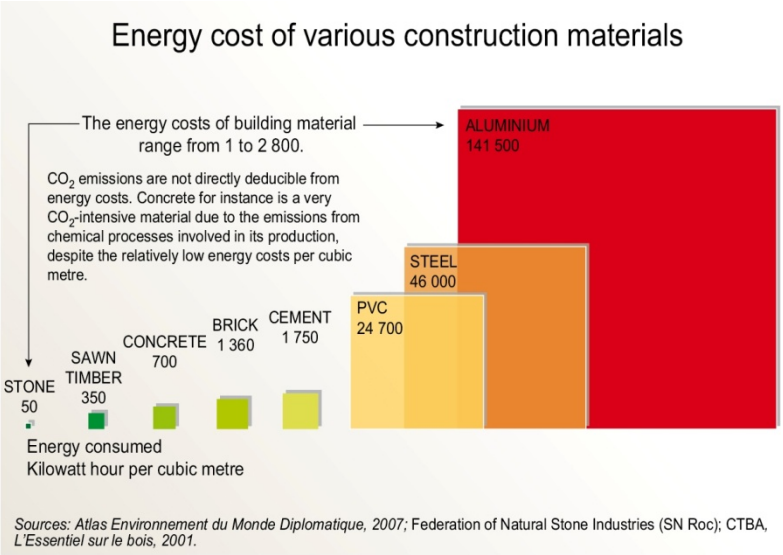
4.2.8 Cost of energy and raw materials

The rising costs of energy and raw materials have had a substantial impact on the construction sector. Since both energy and raw materials constitute production input for manufacturers of construction materials, this subsector has been hit particularly hard. In turn, this has led to higher prices for construction materials. This in turn, has affected suppliers of Onsite construction activities.

Cost of energy

Energy cost is an important factor influencing competitiveness and productivity for Manufacturing of construction materials and Onsite construction companies. The figure below illustrates the energy consumed in kilowatt-hour per cubic metre for the most important construction materials. It shows a major deviation in energy use among the different types of materials and outlines the areas that will be the most affected by the rising energy prices.

Figure 4.2: Energy cost of various construction materials



Cost of raw materials

Steel is a key component in every construction activity, and as Figure 1.4 illustrates, is also one of the more expensive materials used in construction. Steel prices rose sharply in 2010 due to pressure from rising iron ore and coal prices. Last year, the average cost of steel makers' production of steel used in construction ranged between USD 220 and USD 254 USD per metric tonne.

With iron ore contracts set to switch to a quarterly system from an annual benchmark established by the industry for many years, steel producers are concerned that the cost of commodities such as iron ore will continue to remain unstable.

Steelmakers will now negotiate the price of iron ore each quarter. The price is determined by a combination of factors, including taking the spot price for imports in China and adjusting prices to the cost differences between freight and ore quality. This means that the costs for steel producers will change every few months, rather than having a fixed price throughout the year for materials processed.

According to steel index data, the spot price of imported iron ore to China is up 45% from late December 2009 to about USD 173/metric ton in May 2010. Large steel manufacturers such as Arcelor Mittal are conducting meetings with customers to discuss changes in how it will establish contracts to better align with the new system of quarterly prices.

The average price of steel worldwide was up 12% in April 2010 month on month, and more increases are expected. These rising commodity prices took effect from April 2010 in several newly negotiated contracts.

4.3 Exogenous conditions

In particular three types of exogenous conditions affect the construction sector and subsectors in Europe. They are the technological developments that introduce new technologies, materials and products to the sector; the drive toward sustainability, which has also reached the construction sector; and finally the globalisation of businesses and economic activity.

4.3.1 Technological developments

Technological developments play an important role in meeting some of the challenges that the construction sector is facing around improving productivity in the sector, meeting customer needs (functionality, services levels, etc.), energy efficiency targets and introducing recyclable materials. Some of these technological developments include:

- Advanced manufacturing and the emergence of new materials;
- Information and communication technologies – including RFID, systems for managing the construction processes and developing smart homes;
- New technologies for energy supply and efficiency;
- Bionics; and
- Nano- and bio technologies.

Industrialisation and advanced pre-fabrication

According to a recent study (Girmscheid & Scheublin, 2010) construction processes throughout Europe are generally still based on manual labour and do not take optimal advantage of technological developments in the field. Industrialisation holds tremendous potential for increasing efficiency and thus the competitive position of the European construction sector. Industrialisation should not be construed as replacing manual practices with machinery, robots and automated recurring processes. Instead, the concept of industrialisation is much broader and also involves process reengineering. A central component of this strategy is to increase the use of pre-fabricated components. This can be undertaken either onsite or in prefabrication plants and then transported to and assembled at the construction site.

Through increased use of pre-fabrication, the potential for utilising advanced technology in the construction process increases. One such type of technology is computer-aided construction, where digital technology is applied in the design phase (CAD) and/or in the manufacturing of the component itself (CAM). On the hand, technologies as well as BIM (Building Information Modelling) are experiencing increased popularity among architects and civil engineers in areas of design, simulation and coordination. On the other hand, producers of construction materials (apart from window and facade manufacturers) and providers of Onsite construction activities have been more reluctant to embrace digital technologies (ibid., 183-190). There is a major potential for utilising CAD and CAM technologies, particularly in timber construction, which is becoming increasingly popular. In Japan, customers can design a building digitally, take a virtual tour, and move in just four days after placing their order. The actual work at the building site takes four to six hours, whereas the rest of the construction process takes place in automated production facilities. Although this example illustrates the extreme end of the spectrum, it also

clearly demonstrates the potential for embracing prefabrication and digitalization in production.

Nano-products in construction

According to a report by IVAM (Broekhuizen & Broekhuizen, 2009) the awareness of the different actors (including architects, construction engineers and those commissioning constructions) in the construction industry about the availability and performance of nano-materials is very limited. Only a limited number of nano-products make it to today's construction sites. The key areas of application are in:

- Cement, concrete and wet mortar;
- Insulation materials;
- Infrastructure coatings;
- Coatings and paints for wood, glass and other materials as well as for self-cleaning purposes.

The limited use of nano-products is due to a lack of awareness and the fact that nano-sized ingredients are often too expensive to result in competitive products. Intensive research and development is ongoing and future expectations are that the market share of nano-products and their diversity will grow because of the unique characteristics they provide (and are expected to provide). These same products might pose new health and safety risks to the worker onsite, of which science is only just starting to understand. This makes it extremely difficult for European construction companies to assess on what basis and involving what risks they should start using nano-based materials.

4.3.2 Sustainability

Of all economic sectors construction has the greatest impact on sustainability in the world. The sector is responsible for 30% of the global CO2 emissions, is the largest industrial employer, and the largest consumer of materials and natural resources. In other words, the transformation of construction is a key to addressing climate change, human and ecological health, economic recovery and prosperity – not least by developing innovative products as well as reducing energy consumption and thus costs for businesses in all industry sectors. This is evident in the country reviews of this report where most of the European Member States identify sustainable construction/eco-construction as a key issue for the sector.

Policy development forums are proposing that the definition of *sustainable construction* must go beyond the narrow boundary of the building site to embrace a closed loop of activities including planning, design, construction, operation, reuse and maintenance to include the social, environmental and economic consequences of the development cycle (World Economic Forum, 2010:152-156).

The proposals of the World Economic Forum Council aim to create a positive infrastructure and framework for improved well-being:

- *"Optimising supply and demand to ensure four positive goals: that materials are safe, healthy and reusable; energy is 100% renewable; water is 100% clean; social, economic and ecological fairness is achieved*
- *Ensuring from an economic perspective that lifecycle costs are an essential basis for value creation, procurement and innovation*

- *Helping government, business, cities and communities develop and implement their own specific incentives, rewards and policies at every level in society."*

In the interim report of the Lead Market Initiative (European Commission, 2009a), the European Commission proposes a similar broad definition of *sustainable construction*:

"Sustainable construction can be defined as a dynamic for developing new solutions involving investors, construction industry, professional services, industry suppliers and other relevant parties towards achieving sustainable development, taking into consideration environmental, energy, socio-economic and cultural issues. It embraces a number of aspects such as design and management of buildings and constructed assets, choice of materials, energy use the physical and functional performances of building as well as interaction with urban and economic development and management."

Table 4.1: Different terms used and aspects covered

Terms / aspects covered	Low energy building	Low emission building	Green building	High performance building	Sustainable building
Functionality				+	+
Energy efficiency	+	(+)	+	+	+
Resource intensity	(+)	(+)	+	(+)	+
Env. compatibility	(+)	+	+		+
Health	(+)	(+)	+	(+)	+
Socio cultural aspects			(+)		+
Lifecycle costs					+
Value/earnings					+
Technical Quality					+

Source: Lützkendorf, 2009

Building codes and regulations are becoming stricter. Having recognised the advantages of green buildings, national governments and the EU have mandated higher efficiency standards for new construction and renovations. They do this through the implementation of the EU Energy Performance of Buildings Directive of 2002 (EPBD 2002). The follow-up directive - EPBD 2010 - is likely to make "near-zero" energy buildings mandatory by 2021.

As a result, sustainable construction has become an important part of the policy agenda at Member State level and greater emphasis on and requirement for sustainability in public and private construction procurement and architectural competitions have lead to changes in the offers from construction companies and relevant service companies.

However, the Real estate services sector lacks a universal definition of what constitutes a green building as well as consistent data sources and metrics on green buildings. These deficits make an assessment of the profitability of green building investments difficult and therefore hold back investor interest. Potential misalignments between landlord costs and tenant benefits also hinder faster adoption of green building standards.

The number of certification systems has surged in the last decade, although their usage remains limited outside the UK and the US. There are four dominant sustainability certification systems for buildings in the World:

- BREEAM (British - BRE Environmental Assessment Method37)
- DGNB (German -Deutsche Gesellschaft für Nachaltiges Bauen)
- HQE (French - Haute Qualité Environnementale)
- LEED (US- Leadership in energy and environmental design).

They aim to facilitate the move to greener buildings by enhancing the transparency of building operating costs and other sustainability metrics. Regulators in several Member States either have decided on a system to use or are in the process of deciding which to use (perhaps combining several).

Pressure from both residential and non-residential demand and the superior environmental performance of green buildings will be major driving factors in making green buildings mainstream. However, for green buildings to become the de-facto standard, government policies in the EU needs to become more efficient and coherent, representing a balanced mix between sticks and carrots towards the sector. This could lead to a transformation of the whole building stock, which is foreseeable, but will take a very long time.

4.3.3 Global competition

Like other sectors of the economy, the construction sector is increasingly affected by global competition. All three subsectors examined in this study are affected, though some more than others. Recent studies indicate that the growth markets worldwide in construction will be in other markets than the EU with the exception of certain new Member States such as Poland and Romania.

Forecasts from the Global Construction 2020 study (Global Construction Perspectives and Oxford Economics, 2009), expects emerging markets in India, China, Asia Pacific, South and Central America, Middle East and Africa and countries like Poland, Romania and Russia in Central and Eastern Europe. Although the EU currently still represents the largest construction market in the world, the Global Construction Study estimates that

[37] The certification system's websites: http://www.breeam.org/, http://www.dgnb.de/ , http://www.assohqe.org/ and http://www.leeduser.com/

emerging markets will increase from 35% of total global construction output in 2005 to 55% in 2020. In other words, Europe will remain a sizable market, but only countries such as Poland will show strong growth driven by the infrastructure and facility demands of the European football championship in 2012 (jointly hosted with Ukraine). This growth will be fuelled primarily by EU infrastructure funding.

In other words, for the European construction sector to compete in future growth markets, it will need to be visible, active and present in other parts of the world than just Europe. This means competing more on a global scale than the sector is used to.

For the three subsectors, the global competition conditions are outlined below:

- *Onsite construction*
  This subsector is still almost exclusively dominated by local or national competition, especially concerning small and medium sized construction and refurbishment projects. Few exceptions are apparent in large-scale infrastructure projects in which consortia and/or firms from Member States or even countries outside the EU can and will compete for business in Europe. A recent example is the Polish road project mentioned above which was won by a Chinese operator. Other exceptions can be found in highly specialised construction areas and projects, and in these instances European companies also compete globally. However, most construction projects are won by national and even local construction companies.
- *Professional construction services*
  Similarly, the Professional construction services subsector is primarily undergoing local and national competition. 10% of activities of European engineering companies and 15% of European architectural company activities are international. Some design work is outsourced to countries with lower labour costs. Nevertheless, most architectural and engineering activities for the European market also take place in European professional construction services companies. A small group of architect and engineering firms have established global operations. However, most of them operate local departments with local engineers or architects and primarily address the national markets were they are situated. However, for large-scale contracts in developing countries, small and large European operators do compete with Professional construction services from different countries around the globe.
- *Manufacturing of construction materials*
  The global competitive situation in the Manufacturing of construction materials subsector varies depending on the type and nature of building materials supplied. For some building materials global competition is very pronounced. For instance, this is the case for products where labour costs represent a significant part of total production costs and/or where transportation costs and compliance with standards and certifications do not represent a major barrier to distributing or producing the product worldwide. Another factor that influences global competition of building materials is of course the availability of raw materials. For some building materials, such as windows, doors and steel products, access to quality raw materials is essential if manufacturers are to be competitive. Some EU countries are actively encouraging and supporting building materials suppliers in the quest to set up production plants in future growth markets such as China, Russia and South America.

4.4 Conclusions

4.4.1 Regulatory conditions

The European construction sector is subject to various national and European regulatory requirements and standards concerning energy consumption, environmental risks and impact, health and safety, quality of products, etc. These requirements and standards are costly for companies in the sector, particularly in terms of administration.

Overall, representatives of the sector identify three key major policy challenges with regard to the impact of the regulatory conditions on the competitiveness of European constructions companies and the future development of the sector:

- The administrative burden relating to the administration and documentation of adherence to regulatory requirements and standards.
- The lack of a global level playing field due to the differences in regulatory requirements in Europe compared to other world regions. In particular, the regulatory requirements in Europe are making it difficult for manufacturers of construction materials to compete with foreign manufacturers;
- The poor implementation of European regulations and standards as a barrier to the realisation of the internal market.

Addressing these policy challenges in a future strategic agenda for the sector will be important for the development and competitiveness of the sector.

4.4.2 Other framework conditions

Increasing the level of investments in construction projects is a priority for the sector to support activities and increase employment. The costs of operating in Europe as well as access to skills, technology and finance will also have a huge impact on the future development and competitiveness of the sector. Representatives have identified the following key challenges for the sector:

- Increasing the level of investment.
- Rising costs of energy, raw materials and wages constitute a major competitiveness issue and efforts to reduce these costs are a key concern.
- Access to skills will become more difficult in the future due to a reduction in the European workforce in the years to come. The current high level of unemployment in the sector due to the financial crisis could worsen the situation in several ways, including an ensuing deterioration of the skills in the existing European skills base following long-term unemployment and the limited attractiveness of the sector to young talent due to uncertain employment perspectives.
- Access to cutting-edge technology and knowledge of companies in the sector in Europe requires further public and private investments in R&D. In particular, small and medium sized enterprises find it difficult to gain access to technology and knowledge that could help them increase their productivity, promote innovation and improve their competitive position.
- Access to finance has been severely restricted due to the financial crisis. This poses a threat to the survival and future development of companies, especially of real estate clients who are currently shying away from development activities, at least partially due to lack of funding.

4.4.3 Exogenous conditions

Technological developments, increasing competitive pressure and the sustainability agenda represent the future commercial framework for the construction sector in Europe. The sustainability agenda is already being addressed in all parts of the European construction sector. Moreover, European construction companies are exploring the potential of industrialisation and use of new technologies, but the take-up of mature technologies, not least ICT, could be strengthened further.

5. Analysis of 1997 Competitiveness Agenda implementation

The 1997 Competitiveness Agenda was presented on 4 November 1997 in the Commission Communication COM (97) 539 "The Competitiveness of the Construction Industry". Honing the recommendations of the "Document of the Services of the Commission Concerning the Results and Follow-up of the Strategic Study of Construction" from the year before[38] (to realise the objectives of the 1993 SECTEUR report), the Communication identified 65 specific actions in relation to four overarching strategic objectives, namely to:

- Improve the quality in construction (by developing quality procedures and standards taking into account environmental, regulatory, employment and entrepreneurial considerations);
- Improve the regulatory environment (by adapting in particular rules and procedures for public procurement, unfair competition, registration and qualification systems, health and safety and payment delays);
- Improve education and training provisions (by upgrading the education levels and pathways offered, the qualifications of the workforce and the image of the sector); and
- Reorient and reinforce research and development (by targeting actual needs and encouraging private investments in RTDI as well as collaboration and dissemination of results).

In addition, a fifth strategic objective "*to facilitate international expansion of all facets of the EU construction industry*" arguably pervaded the other four.

These conclusions were adopted by the Industry Council on 7 May 1998 and on the invitation of the Council further refined into a concrete Action Plan containing a consolidated list of 13 main priority actions agreed between the European Commission, Member States and industry at a joint seminar a year later on 31 May 1999.

The 13 main priority actions identified at the time were:

Regarding quality

1. To promote and encourage the use of quality procedures and standards for Quality Assurance (QA) and Total Quality Management (TQM);
2. To develop and use life cycle analysis (LCA) criteria in all the phases of the construction process;

[38] According to, for instance, the WG ALT Final report from May 1999 (p.8), but in reality may refer to "Strategies for the European Construction Sector – A Programme for Change" from 1994 (Atkins report for the Commission)

Regarding the regulatory environment

3. To stimulate the use of award criteria which consider quality, innovation and life cycle cost requirements;

Regarding education, training and the image of the sector

4. To foster a substantial and sustained growth in both the level and the quality of education and training provision at all levels of the sector;
5. To encourage the development of skill and competence definitions which remove barriers to the mutual acceptance of workers;
6. To improve employment conditions and the image of the sector;

Regarding research and development

7. To investigate alternative resources for increasing R&D investment and to achieve better dissemination of findings;
8. To develop strategies to identify and overcome barriers to innovation, particularly in construction process and material development matters;

Regarding markets

9. To enable fair competition by making use of mechanisms to detect and rule out abnormally low offers;
10. To facilitate international expansion of the EU construction industry by identifying and seeking the removal of trade barriers in third countries;

Regarding the construction process

11. To identify the key areas of competitiveness to which benchmarking could be applied to measure performance and to identify best practices in order to improve efficiency;
12. To encourage the use of IT throughout the construction process, particularly in the case of SMEs;

And regarding sustainable construction

13. To develop a European strategy for the use of promotion of environmentally-friendly construction materials, energy efficiency in buildings and waste management, in order to contribute to sustainability[39].

5.1 Results and impact of 97 competitiveness agenda according to literature reviews

National reviews do not play out a direct relationship between Commission and Member States activities on construction competitiveness. While the same four or similar strategic objectives have been (and are) at the centre of most national policy developments, only in a small handful of the reviews are part of the intermittent developments explicitly attributed to the impetus of the 1997 Competitiveness Agenda (CZ, ES, PT, SK), and in nearly just as many national reviews any impact at all is explicitly refuted (BE, FI, UK).

[39] For efficiency and resource reasons, the original aim was to establish a first and a second line of priorities. However, a consensus about medium and long-term actions was unobtainable and responsibility for selecting the order of priorities according to industry needs was deferred to the Commission.

Moreover, in the majority of the national reviews the 1997 Competitiveness Agenda is largely unknown although it is clear that this general lack of awareness simply may reflect a change of staff in the interviewed organisations during the period since the Agenda's implementation (interviews February - April 2010, cf. progress report).

Similar vague conclusions about the impact of legislation and policy on construction competitiveness are reached in the 2006 sector study by the Manchester Business School.

However:

> *"The [literature] review showed that there was little or no discussion in the literature of legislative and policy impacts on the aspects of construction competitiveness. There was, however, literature on the general influence of legislation and policy on competitiveness, which exhibited a wide variety of findings. Depending on the analysis, legislation and policy initiatives were considered to give rise to positive, neutral or negative impacts on competitiveness.*
>
> *The papers examined showed a wide range of opinions about the nature of the impacts, with no consensus emerging despite the abundance of publications on the issue. This is to some extent the result of differences in outlook, assumptions or theoretical position. It is also partly caused by the difficulty of making general statements in this area; the impacts of a certain policy on competitiveness will depend on the particular aims of the policy; how the policy is designed; the ability of industry to respond and innovate; whether the sector affected is traded or not; how significant any costs arising are in comparison with other costs; etc"* (Wubben, 1999; Willis, 2005, Manchester Business School, 2006:56)

And summarising the study's findings:

> *"Having commented above that there is little information available on impacts of European policies on construction, it must also be recognised that this study has not revealed evidence of widespread dissatisfaction with regulatory policies as formulated and promulgated at European level. There appears to be no general perception, for example, that the aims and principles of European environmental policies or public procurement policies are unnecessary or wrong, although there are detailed criticisms. Indeed, the questionnaire data showed rather positive views about the impact of policies.*
>
> *Where there is significant dissatisfaction, it appears to stem from the national implementation of policies by Member States, either because of specific aspects of the implementation or in some cases because of the variation in implementation mechanisms and requirements across the EU, which is seen to hinder the development of a single European market. This was particularly observed in the area of public purchasing where there was a wide variation in attitudes to local requirements.*

> *The overall effect of national interpretations, coupled with differing approaches to enforcement, is to reduce the effectiveness of measures that are intended to produce a single European market for construction goods and services and generally to detract from the concept of a uniform regulatory framework for trade in Europe."* Manchester Business School, 2006:120)

The study explains this apparent contradiction in viewpoints between national and European levels as a consequence of the political and consultative processes that precede the introduction of legislation at European level and which should reveal whether the intended regulatory policy measures are likely to cause significant difficulties for particular industry sectors or types of enterprises (ibid.). Such issues of permutation and dilution in the process of translation and implementation only become more pronounced when policy measures are not backed up by legislation. In a more recent study focusing solely on policy learning within the domain of sustainable construction, it is thus concluded that the trickle-down effect of recommendations and best practice from above through governmental as well as sectoral hierarchies to individual enterprises and front office administrations cannot be assumed without concomitant encouragement, facilitation and monitoring (Rydin & Moore, 2009).

5.2 Implementation process for the 97 competitiveness agenda

Already while discussing the final list of actions to be included in the Action Plan, the creation of a number of working groups (WGs) with wide stakeholder representation to expand on the joint understanding of the action areas was agreed by the Commission and Industry. The first two such working groups were set up in the autumn of 1998 to examine the issues of abnormally low tenders (WG ALT) and limited use of information technology (WG IT). An additional two working groups were set up during 1999 to examine issues related to education and training and the image of the construction sector (WG EDU) and to sustainable construction (WG SC).

The recommendations of the working groups were all accepted by the Commission, Member States and industry with minor comments, in particular in relation to coordination with DG TREN on energy efficiency and consideration of national environmental regulation.

Sustainable construction has come into the primary focus of current EU construction activities initiated under the umbrella of the reinforced Sustainable Construction Lead Market Initiative. Otherwise implementation of the recommendations of the working group for sustainable construction would appear to have suffered from the same lack of facilitation and follow-up as concerning the recommendations stemming from the work of the other WGs. One significant exception, however, is the recommendations of the subgroup on energy efficiency in buildings, adopted as the foundation for the Directive on Energy Efficiency in Buildings. The adoption of these recommendations from 2002 has proven relatively successful (notably, however, no monitoring or dissemination activities were planned for this subgroup either).

Reports and complementary projects

In addition to convening the above working groups, a number of reports and complementary projects were also initiated within the framework of the 1997 Competitiveness Agenda, especially in relation to the fourth strategic objective concerning research and development. Most notably, these include the 1999 ECCREDI study of innovation in the construction sector, the ICCI (Innovation co-ordination, transfer and deployment through networked Co-operation in the Construction Industry), E-CORE (European Construction Research Network) and ROADCON (Strategic Roadmap towards knowledge-driven sustainable Construction) projects running at various times in the period 2001 to 2005. They are all in some way or form predecessors to the current European Construction Technology Platform (ECTP).

An important effort, moreover, was made to gauge the technical feasibility of developing and applying benchmarking techniques such as key performance indicators (KPI) within the construction sector in order to determine best practice levels of performance (in accordance with the 11th priority (areas of competitiveness to be benchmarked). A pilot study was commenced in 2000 and completed in 2001. The study showed that it is indeed possible to collect meaningful data across Europe even if comparable data for all Member States were not available at the time. The work on the development of benchmarking in construction was continued in a 2006 study by Bernard Williams Associates (2006).

Concerted action

Overall, the evolution of the 1997 Competitiveness Agenda from Commission Communication to Action Plan to working groups and networked projects evidences a strong recognition of the need to establish full and lasting involvement of all relevant stakeholders in a policy area such as construction, where no one actor has the authority nor the resources and means to implement broad changes singlehandedly. Concerted action among many actors demands a sufficient level of commitment (achieved through sense of ownership and mutual trust) towards ensuring efficient and adequate implementation from the individual actors.

On paper, the following eight industry representatives were the most involved in the WG's work, participating in at least three of the four WGs:

- Architects' Council of Europe (ACE);
- Council of European Producers of Materials for Construction (CEPMC, not involved in WG EDU);
- European Builders Federation (EBC);
- European Construction Industry Federation (FIEC);
- European Council of Building Professionals (ECBP, merged with AEEBC, Association of European Building Surveyors and Construction Experts, in 2005);
- European Council of Civil Engineers (ECCE);
- European Federation of Building and Woodworkers (EFBWW);
- European Technical Contractors' Committee for the Construction Industry (CEETB).

All other organisations, research institutes, independent experts and companies involved in the process on the industry side (46 in total), participated in at most two of the WGs. For instance The Belgian Building Research Institute, BBRI/CSTC/WTBC, participated

in WG IT and WG SC, and the European Network of Building Research Institutes, ENBRI, participated in WG EDU and WG IT.

With few exceptions such as BBRI, national organisations and research institutes were only directly involved in the work of WG SC.

Twelve of the EU15 Member States were directly involved in at least one, but at most two, of the WG's work – mainly participating in WG ALT (the EMAT task group) and WG SC. None participated in WG EDU.

At least on paper various DGs besides DG ENTR also were involved in the different WGs depending on their areas of expertise, most notably DG EAC in WG EDU, DG INFSO in WG IT and DG ENVI in WG SC.

The real involvement of the listed actors in the WGs naturally varies. Nevertheless there is common agreement that the WGs performed well, especially considering that participation was nonpaid as was almost all secretarial work, and that mandates were fulfilled. Moreover, the relatively small size of some of WGs and the limited involvement of Member State representatives can be explained by a lack of familiarity with topics such as IT and energy efficiency in buildings at the time.

On the other hand, there is also common agreement that more could have been done to circulate, propagate and monitor the recommendations of the WGs *after* the completion of the respective working periods. These sentiments relate to the transfer of information through both governmental and sectoral hierarchies and/or networks (each with its own particular barriers in terms authority and fragmentation) as well between DGs. Issues that could be addressed range from the simple translation of recommendations into national languages to the more strategic consideration of realistic and concrete actions framed in language that is understandable and relevant in a multitude of national or even regional and local settings.

Learning points for a future competitiveness agenda

In sum, the following general learning points can be drawn from the review of the implementation of the 1997 Competitiveness Agenda presented above:

- Overall, *all four strategic objectives in the 1997 Competitiveness Agenda are still pertinent* and at the centre of national policies for the improvement of the construction sector. Thus, most Member States currently are operating or planning initiatives to address quality, regulatory environment, education and training and/or research and development in construction. From this perspective, the agenda has failed to provide an answer to any of the most pressing issues identified back in 1997. Arguably, however, the '97 competitiveness agenda was never designed to conclusively solve these issues, and it is indeed questionable whether such absolute answers exist given the moving target nature of the issues and rapidly changing world markets and conditions for construction.;
- At the European level there is general agreement among stakeholders about the *relative success of the 1997 Competitiveness Agenda as a catalyst* for improved quality, efficiency and sustainability in construction across Europe, but also frustration with the sporadic and unsystematic continuation of the initiated processes beyond the working group boundaries;

- At the national level, conversely, there is notably little evidence in the country reviews (see Annex 1 to the progress report) of any meaningful relationship between the 1997 Competitiveness Agenda and subsequent national activities. Even if partly explained by intermittent changes of staff in the interviewed industry organisations and public agencies, this points to a number of *likely circumstances constraining the practical impact* of the 1997 Competitiveness Agenda;
- While the Agenda presented an ambitious plan for the improvement of the construction sector with an extensive list of priority actions targeting multiple problem areas, it was in fact supported by *limited funds and staff* and had to rely primarily on voluntary contributions from industry and Member States. This reduced the amount of facilitation, follow up and coordination and hence the extent of the work achieved in the working groups;
- *No real dissemination or monitoring measures* were implemented alongside the recommendations to manage and push the spread of information from a European level. As a result, dissemination suffered from broken information cascades or at least not automatic nor instant passing on of information down government hierarchies and tiers of industry associations due to:
  - Inadequate tailoring of recommendations to the relevant target audiences (customised to sectoral and national contexts as well as level of development). Recommendations in practice were either too context dependent to be directly transferable (e.g. single country evidence base) or too vague to be directly applicable (i.e. no regard for context), which caused an almost inherent need for interpretation in implementation;
  - Limited identification and consequently participation of the persons and/or networks that would have been able to best disseminate the recommendations and facilitate implementation;
- What could be possible alternative approaches to consider for the implementation of the new competitiveness agenda?
  - One approach could be to have fewer, but more visionary common goals. The solutions to meet these goals could be tailored to individual countries or clusters of countries with similar sectoral characteristics. This would allow countries to collaborate on issues that were common to them including sharing and developing good practices recognizing the value of one vision, but several complementary and context-dependent solutions. (The European Construction Technology Platform (ECTP), for instance, which was established to coordinate EU R&D in relation to the construction sector, is linked to national construction technology platforms (NCTP). However the NCTPs prioritise their own R&D activities based on the strengths and needs of the national construction sectors.);
  - Another approach could be to create a stronger link between the competitiveness agenda and RTDI agendas through a set of pertinent indicators that could be used as a tool to measure progress on the ground and discuss priorities and relevance of initiatives against goals;
  - At the same time, an improved approach to implementation could focus more on the nature of information networks and the importance of knowledge brokers (such as connectors, mavens and salesmen) to actively disseminate recommendations and provide systematic information flow management to encourage, facilitate and monitor developments;
  - Furthermore, the programme may benefit from strong multi-stakeholder commitment and coordination at national level across the different national

initiatives aimed at improving or otherwise influencing the competitiveness of the construction sector.

5.3 Conclusions

Overall, all four strategic objectives in the 1997 Competitiveness Agenda are still pertinent and at the centre of national policies for the improvement of the construction sector. Thus, most Member States are currently operating or planning initiatives to address quality, regulatory environment, education and training and/or research and development in construction. It is arguable whether the objectives of the 1997 Competitiveness Agenda will remain relevant forever given the moving target nature of the issues and rapidly changing world markets and conditions for construction.

At the European level, there is general agreement among stakeholders about the relative success of the 1997 Competitiveness Agenda as a catalyst for improved quality, efficiency and sustainability in construction across Europe and a perception that any potential problems have arisen mainly in implementation at lower levels.

The 1997 Competitiveness Agenda presented an ambitious plan. However, it was in fact supported by limited funds, and staff primarily had to rely on voluntary contributions from industry and Member States. This is likely to have had a negative impact on the amount of facilitation, follow-up, and coordination and hence the extent of the work achieved in the working groups.

In relation to the future competitiveness agenda key learning points are:

- Fewer, more visionary and measurable common goals; rather solutions tailored to individual countries or clusters of countries;
- Creation of a stronger link between the competitiveness and RTDI agendas through a set of indicators to measure progress;
- Implementation to focus more on the nature of information networks and the importance of existing knowledge brokers to actively support implementation; and
- Strong multi-stakeholder commitment and coordination at national level across the different national initiatives.

6. Strategic outlook

The purpose of this strategic outlook is to draw up the state of current EU policies and future policy options in relation to the sustainable competitiveness of the European construction sector. In this chapter, we first outline the key challenges for the sector identified in previous chapters and provide an overview of the existing policies at European level. On this basis, we present a proposal for various policy measures taking into account likely impacts and potential risks associated with each of the suggested measures. We also provide a brief assessment of the relative importance of the identified policy measures in each of the future scenarios.

The suggested policy measures are a significant contribution to the communication to be published by the European Commission for the sustainable competitiveness of the European construction sector. In the final section of the chapter we have outlined a governance structure and implementation plan to drive and monitor the implementation of the competitiveness strategy for the European construction sector.

6.1 Key challenges of the sector and subsectors

We present the key challenges below divided into the four dimensions that make up the structure of the competitiveness analytical framework applied in the study:

- Internal factors (value and supply chain);
- External factors (market conditions and demand);
- Relative competitive position;
- Regulatory and other framework conditions.

6.1.1 Internal factors (value and supply chain)

Poor innovation performance in the sector

There is a need to boost R&D and innovation participation, development, uptake and dissemination in the sector through market and employee driven innovation, regrouping of firms in networks and clusters to address issues of scale. Stronger efforts are needed to disseminate and integrate good practices.

Poor productivity levels

Market and employee driven innovation is poorly deployed due to primary focus on cheapest price instead of the economically most advantageous proposal, but also because of poor deployment of enabling technologies, insufficient use of flexible work organisation practices including poor value chain integration, and insufficient investment in Life Long Learning (LLL). The sector is missing opportunities to add significant value to the economy, addressing the grand challenges and also being more profitable.

Narrow skill sets

In large parts of the sector current skill sets may prevent the sector from becoming more competitive and in meeting new demands for high performance construction products and services in the market. One issue is that generic skills associated with 21st century jobs and occupations so far are poorly addressed and integrated in Vocation Education and Training (VET) and Continuing VET provision. Generic skills such as problem orientation, problem solving, communication, entrepreneurial skills and design are critical to cross occupational collaboration in work teams and to exploiting value added creation at the firm level through employee and market driven innovation.

Cross functional teams spanning across traditional sector boundaries is critical to explore opportunities relating to buildings as energy efficient systems and eco- building renovation etc. In many Member States, collaborative approaches will require changing leadership practices in the construction sector, not least in the many micro enterprises that are characteristic of the sector.

6.1.2 External factors (market conditions and demand)

General macroeconomic environment

During the financial crisis the sector has been affected by severe drops in demand especially from the private residential market but also from other markets (differences exist in demand trends across Member States). So far, the infrastructure market has been the least affected due to existing scheduled investments. However, public spending is also under pressure due to the crisis (targets are to reduce deficits by 50 per cent by 2013 and the public revenues and costs should be balanced by 2016). Some countries have invested in stimuli packages as part of their post crisis strategy. However, it could be argued that stimuli packages that do not enable the development of increased productivity and innovation capacity in the sector - and the ability of the sector to contribute to a greening of the economy - will have limited effect, also in terms of medium term employability of the existing workforce.

Demographic change

The ageing of societies will influence the future tax revenue of states and the availability of workforce for the sector. However, these developments also create new market opportunities and technological services stimulated by the demands of elderly and healthcare systems.

Labour market conditions

When the economy improves, the intra EU competition for skilled labour will likely return, and skills shortage and skills gaps could again become an issue for the sector in some countries.

Major drivers of structural change

There exist huge world challenges that can become enablers of sustainable growth in the medium term provided appropriate measures are taken now as this could result in the development of a range of technological services to address such issues as health and safety, energy efficiency, green building, good indoor air and climate, and renovation processes and materials, designed to fit. If correctly addressed these challenges could not only stimulate developments within the EU, but could also open new market

opportunities in developing countries especially for Professional construction services and Manufacturing of construction materials and specialised contractors. One of the conditions for success in this field is the existence of a truly level playing field for both EU and third-country enterprises.

Demands for convenience

Increasingly clients and users are demanding better performance of constructions. Users expect convenient solutions in the short, medium and longer term from the construction sector. Key demands include low maintenance, automation, flexibility, health improving features, optimal environmental integration, etc.

6.1.3 Relative competitive position

Weak growth prospects in EU markets

As European construction markets are expected to grow at a slower rate than emerging markets in for instance the BRIC (Brazil, Russia, India and China) countries, the sector will need to develop and maintain a stronger global perspective. To a certain extent, this also depends on the existence of a truly level playing field both in EU and third-country markets.

Fragmented industry structures

The markets of the EU construction sector and as a result in the sector itself is highly fragmented with only very few large construction companies and the participation of enterprises in trade organisations is very low in most Member States making it difficult to spread good practices. Poor value chain integration has furthermore a negative effect on potentials of spill-over innovation effects from collaboration. This is reflected in large differences between Member States in the competitive performance of the sector.

Growing international (global) competition

The sector faces increased competition from outside EU. The sector organisations have raised issues of unfair competition from state-owned enterprises benefitting from unlawful state aid in EU construction markets and also fear unfair competition from third-country enterprises not respecting European employment, environment and competition laws. There is increasing evidence that in particular countries under budget pressure drive public infrastructure procurement in the direction of abnormally low offers from non-EU contractors. For example, the Chinese have positioned themselves in developing countries that have experienced positive growth in recent years, and thus invest heavily in infrastructure development. Similarly, competition is increasing on non-EU markets from international contractors due to state-aid, highly competitive labour costs and high skills and technological level.

6.1.4 Regulatory and other framework conditions

Regulatory environment

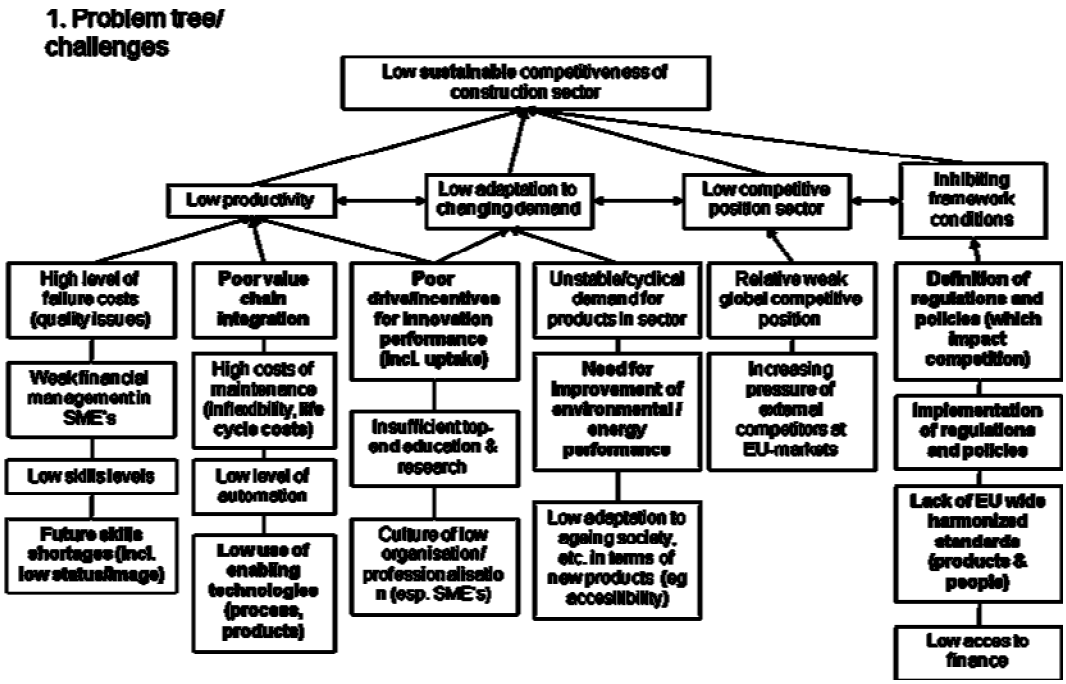
Following on from the above, the sector is faced with an increasingly stricter regulatory environment in terms of health and safety, environmental and energy efficiency regulations. The challenges concern not only the definition of the regulations but also their implementation at national level. In addition, the standards concerning products and the certification and qualification of professionals lack harmonization across Member

States. This regulatory environment provides threats as it may unbalance the EU and global playing field for investors, developers and suppliers of construction products and services.

Access to finance

The financial crisis, delayed payments by clients, ineffective financial management and limited profitability of parts of the construction sector have put strains on the access to finance for the sector overall.

6.1.5 Overview of key challenges



6.2 Existing policies and regulations

Economy and industry

The European Union, the Member States and the sector itself already have a large number of on-going policy initiatives indirectly or directly aimed at supporting the development of sustainable competitiveness in the construction sector. The *Europe 2020 strategy* sets the overarching framework for a future strategy for construction focusing on the following three priorities:

- **Smart growth**: developing an economy based on knowledge and innovation;
- **Sustainable growth**: promoting a more efficient, greener and more competitive economy;
- **Inclusive growth**: fostering a high-employment economy delivering social and territorial cohesion.

As the core of the Europe 2020 strategy, the European Commission has developed a *new industrial policy* - "An integrated industrial policy for the globalisation era"[40] that focuses on the following ten actions:

- A "competitiveness proofing" of new policies and legislation will be undertaken;
- "Fitness checks" to identify potential for reducing the cumulative effects of legislation and cutting the costs for businesses in Europe;
- Support SME creation and growth by making it easier for them to access credit and help their internationalisation;
- A strategy to strengthen European standardisation will be presented to meet the needs of industry;
- European transport, energy and communication infrastructure and services will be upgraded to serve industry more efficiently;
- A new strategy on raw materials will be presented to create the right framework conditions for sustainable supply and management of domestic primary raw materials;
- Sector-specific innovation performance will be addressed through actions in sectors such as advanced manufacturing technologies, construction, bio-fuels and road and rail transport, particularly in view of improving resource efficiency;
- The challenges of energy-intensive industries will be addressed through actions to improve framework conditions and support innovation;
- A space industrial policy will be pursued, developed in collaboration with the European Space Agency and Member States to create a solid industrial base covering the whole supply chain;
- The Commission will report on Europe's and Member States' competitiveness, industrial policies and performances on an annual basis.

The construction sector plays an important role in relation to all ten of these actions either as a relevant target of the action or as a significant contributor to meeting the aim of the integrated industrial policy for the globalisation era. In addition, EU trade policy[41], which includes a proposal for a better reciprocal access in public procurement[42], is important for the development of global construction markets.

Employment and skills policies

The European Commission has launched and updated integrated guidelines for the *employment policies* of the Member States for 2008-2010. The guidelines urge Member States, in cooperation with the social partners to implement policies that in a balanced manner can enable:

- Full employment: Achieving full employment, and reducing unemployment and inactivity, by increasing the demand for and supply of labour through an integrated flexicurity approach and within the context of new skills for new jobs;
- Improving the attractiveness of jobs, quality at work, labour productivity growth, reducing segmentation and the proportion of working poor;
- Strengthening social and territorial cohesion by fighting poverty, preventing exclusion from the labour market, integrating people at a disadvantage in employment and reducing regional disparities in terms of employment.

[40] http://ec.europa.eu/enterprise/policies/industrial-competitiveness/industrial-policy/files/communication_on_industrial_policy_en.pdf

[41] http://ec.europa.eu/europeaid/where/acp/overview/cotonou-agreement/index_en.htm

[42] http://trade.ec.europa.eu/doclib/docs/2010/november/tradoc_146953.pdf

The Commission's initiative *new skills for new jobs* supports the Europe 2020 Strategy in so far as it is an enabling policy aimed at identifying business areas where sustainable jobs can be developed through innovation, entrepreneurship, technology development, and through targeted education and training activities.

Social policies

Apart from combating poverty, social exclusion and reforming welfare systems, the EU s*ocial protection and inclusion policies* also encourage Member States to prepare for the effects of population ageing by focusing upon emerging opportunities. Common objectives and common indicators have been agreed, and they are translated into national plans at Member State level.

Innovation and development

The structural funds (ERDF, ESF, cohesion fund) in cooperation with Member States, the competitiveness and Innovation programme, Life+ programme, R&D programme (FP7 and FP8 coming up) and lifelong learning programme (especially Leonardo da Vinci) are instruments for the European Commission to support innovation, job creation and increased competitiveness.

From 2004 to 2007 the first ERA-Net on construction ERABUILD was established as a strong platform in ERA among the Member States for the funding of RDI (research, development, and implementation) in the construction sector. The second ERA-Net in construction, *Eracobuild*, was launched in 2008. The overall aim was to develop deeper, more durable co-operation and co-ordination between national funding bodies across Europe and to increase the quality and impact of research in the construction sector. *Eracobuild* was linked to the Strategic Research Agenda of the European Construction Technology Platform and defined two thematic frameworks for cooperation; sustainable renovation and improvement of supply chain and client integration.

Energy and environment

The climate and energy strategies have the following aims:

- Renewable energy to represent 20% of energy production;
- A reduction of greenhouse gas emissions by 20% (base 2005);
- Achieving energy savings of 20% by 2020.

These are ambitious targets. The targets go further to reduce CO2 emissions by 80-95% by 2050. A central target is that all new buildings after 2020 should achieve a carbon footprint of almost zero. At Member State level, further initiatives have been taken to improve the carbon footprint of the existing building stock. The recently updated Energy Performance of Building Directive is supporting this process with significant improvements in energy performance required for renovations of existing buildings.

The EAPT² initiative (Action Plan for Energy efficiency Taskforce of the Construction Sector) is an initiative from the construction sector and comprises a number of sector organisations. The initiative has put forward a paper suggesting further action needed to achieve the EU targets in relation to the existing building stock. In addition, the European policy for eco-industries and the ECO-design Directive have implications for professional construction services that focus on sustainable solutions, producers of products and

components. It inherently represents a significant carbon footprint for construction companies that buy and use these products and components.

The Directive on Electricity Production from Renewable Energy Sources requires Member States to adopt a national renewable energy action plan which sets targets for the share of energy from renewable sources consumed in for instance electricity, heating and cooling in 2020 plus measures to achieve these targets.

The Directive 2006/12/EC on waste was revised in 2008 in order to modernise and streamline its provisions. The 2008/98/EC revisions defines waste management principles such as the "polluter pays principle" or the "waste hierarchy". In connection with the launch of this directive, construction and demolition waste was set a minimum recycling target of 70% by 2020.

Other relevant initiatives in this area include the Environmental Technology Action Plan (ETAP), the Construction Information Platform (CrIP); initiatives to reduce construction waste, an increased focus on life cycle costing and green public procurement.

Internal EU market

The Construction Product Directive (CPD) was approved some 20 years ago and much progress has been achieved. However, there are still areas where standards are missing, and there are deficiencies and gaps in the standards. CPD obliges Member States to establish competent bodies such as a standardisation body, approval body, market surveillance, notified bodies and building authorities to implement the CPD. The proposed Construction Product Regulation offers further improvements to reduce excessive burden, unjustified administrative costs especially for small business whilst ensuring coherence with other EU legislation regulating construction products.

The key elements of the Services Directive is the removal of barriers to market entry through national screening procedures, electronic information and procedures through improved national points of single contact, regulators talking to their counterparts through administrative Co-operation/Mutual Assistance across Member States and the improvement of consumer rights with a focus on Quality of Services. For a professional construction services sector which so far does not show much intra EU trade or international expansion within Europe, the Services Directive offers international growth opportunities.

The lead market initiative for sustainable construction outlined 11 actions for the period 2008-2011 around three key objectives: 1) making the regulatory and standardisation framework for sustainable construction more coherent; 2) developing a culture for innovation and life cycle costing in public procurement; and 3) improving the functioning of the supply and the collaborative environment with customers.

Public procurement will play a significant role in supporting the 2020 Strategy and it already has a huge demand side innovation influence on the construction sector. A drive towards the modernization of public procurement policies will impact the construction sector as will a focus on procuring more sustainable and “green” solutions.

In conclusion, a large number of initiatives at European, national and sector levels have already been implemented to improve the competitiveness of the construction sector and to meet a range of different strategic goals. There may well be a need for improved coordination of these initiatives. Greater focus on streamlining, policy coordination, achieving critical mass, and improving the effectiveness and targeting of these initiatives may be an area for future focus.

6.3 Vision and objectives for the sector

Given the challenges faced by the sector, the EU 2020 strategy and priorities, the following vision could be relevant to consider for a future communication on sustainable competitiveness of the construction sector:

By 2020 a sustainable and competitive European construction sector will:

- Conceptualise, design, build, operate and transform constructions based on high quality models and life cycle cost and benefit performance;
- Be an attractive sector to work within, providing excellent opportunities for career development, remuneration and health and safety;
- Offer constructions (buildings and infrastructure) that are tailored to the changing social and economic needs of people, businesses and societies (including relevant special needs segments of populations);
- Offer new and innovative solutions that meet the demands associated with the global grand challenges (climate, energy supply, security, etc.):
  - be instrumental in EU reaching 2050 targets for energy efficiency in buildings while taking into account all other essential technical requirements;
  - reach or go beyond the 70% target for waste recycling;
  - meet requirement for quality of indoor air and climate in buildings;
- Be an attractive partner to clients by meeting changing demands in existing and emerging growth markets;
- Deliver outstanding economic performance.

Objectives

To deliver this vision five overarching objectives have been developed:

- Objective 1: Strengthening the single market for construction through more effective regulation;
- Objective 2: Improving the skills base and work organisations practices through professionalisation and partnerships between private and public sector;
- Objective 3: Improving innovation capacity and performance in all its forms in the sector with a view to increase productivity, sustainability and value added in all parts of the value chain;
- Objective 4: Higher sustainability in design, products, processes and operations;
- Objective 5: Strengthening the global competitive position of the sector.

6.4 Recommended policy measures

This section presents the proposed policy measures required to meet the objectives and addressing the challenges faced by the construction sector. First, we present an overview followed by a detailed presentation of the proposed measures.

6.4.1 Objective 1: Strengthening the single market for construction through more effective regulation

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
Strengthening the single market for construction through more effective regulation	All subsectors	Monitoring and supporting the implementation of the Construction Product Regulation, the minimum standards for Health & Safety, Professional Qualifications and other regulations (EU, MS)	3+ years	High
		Clarification of parts of the service directive to allow construction services companies to access EU markets (EU & MS)	1-5 years	Medium impact for certain service companies.
		Support the effective implementation of the amended late payment directive (EU, MS) to ensure that all companies along the construction value chain are paid within reasonable time.	1-5 years	Medium impact

Challenge

A wide range of harmonised standards for construction products have been developed in support of the realisation of the internal market. However, the implementation of these standards and procedures at national level is slow and still many national and even regional standards persist restricting access to these markets and increasing transaction and compliance costs. A wide range of harmonised standards for construction products has been developed in support of the realisation of the internal market. While some of them are being implemented successfully, others face significant challenges. One substantial barrier to implementation is the different and often stricter national standards that exist alongside European standards. Another barrier is the lack of technical expertise and financial resources among certain Member States, which are both necessary to uphold an effective standardisation procedure. Such barriers continue to restrict cross-national flows and increase transaction and compliance costs. Furthermore, there are still gaps and deficiencies in the standards, which are also still missing for some construction products.

The current definition of the Services Directive has created problems for cross-border trading of construction services.

The problems faced by service companies are twofold:

- The service companies could be faced with significant difficulties to obtain insurance for cross-border activities (insurance may be difficult to find on the market or may be subject to highly onerous conditions). This creates implementation problems for cross-border services;
- The regulation of architects and various installation trades varies across Member States. Some countries regulate through professional certification whereas others regulate the work of architects/installers and in some countries it is a combination. In

others the profession of architect is not protected. These differences make it difficult and in some situations impossible to operate in a different European country.

The Services Directive is currently being examined in relation to the construction sector and a number of areas have been identified as not being well supported by the current legislation.

The minimum requirements in the field of health and safety at work provide for a minimum level of harmonisation across EU. See also the Commission Communication COM (2008) 698. The implementation of the requirements across Member States varies and affects the resources of construction companies differently with higher level minimum requirements in some countries compared to others. The EU Strategy on safety and health at work for 2007 – 2012 calls for a proper implementation of the EU legislation in sectors particularly exposed to occupational health and safety risks like construction. Equally minimum requirements have been agreed in the amended Late Payment Directive. However, these new requirements are not yet implemented at MS level.

Objective for the sector

Strengthening the single market for construction through more effective regulation.

Indicators

Possible indicators include:

- Complaints from construction services companies in relation to the service directive;
- Developments in cross-border sales of construction services and construction products (in terms of construction materials and components) within the EU;
- Level of implementation of Construction Product Regulation across Member States when finally adopted (in terms of number of parallel national and regional standards; training and monitoring activities at Member States level; CEN and Standing Committee on Construction MS participation);
- Level of implementation of the amended Late Payment Directive (in terms of surveys of payments to examine proportion of late payments and number of fined public institutions);
- Level of implementation of the minimum requirements for health and safety at work in construction (in terms of adoption of and compliance with issued standards and guidelines, surveillance and monitoring activities, existence of H&S employee certification based on training).

Subsector and value chain relevance

This is relevant for construction product suppliers and construction companies in terms of the construction products and for installers, architects and other service providers within the construction sector in relation to the Services Directive. This is relevant for construction companies and construction services in terms of health and safety requirements and it is relevant for all subsectors in relation to the implementation of the amended late payment directive.

Policy measures and intervention logic

The Services Directive should undergo relevant clarification in order to facilitate access to European markets for service companies.

The relevance of the information provided to enterprises is a key requirement to reinforce the Single Market. The information should be of high quality (on legislative context, etc.) in order for enterprises to conduct business abroad. The Services Directive has improved the situation with the one-stop-shops. However, the available websites are not all sufficiently informative and the functioning and promotion of the websites could be improved. Furthermore, as promoted by FIEC, linked to access to insurances for cross-border business, the article concerning insurances and liabilities in the Services Directive could be made clearer. The impact should take effect within short to medium term and would have a significant impact on the competitiveness of the implicated construction services sectors.

The market for construction products in Europe is currently regulated by the Construction Products Directive (Council Directive 89/106/EEC). The purpose of the Directive is to "ensure the free movement of all construction products within the European Union by harmonising national laws with respect to the essential requirements applicable to these products"[43]. The European Commission has continued its efforts to strengthen the internal market for construction products through the proposed Construction Products Regulation (CPR not yet adopted) which intends to "simplify and clarify the existing framework, and improve the transparency and the effectiveness of the existing measures".[44] The European Commission will need to ensure the continuous monitoring and support to Member States in the implementation of the upcoming regulation. This monitoring and support activity will concentrate on providing guidance on implementation specific to national legal systems, measuring progress of replacing national and regional standards with European standards, and measuring progress of establishing the necessary infrastructure and competences to implement the regulation. Such support and monitoring of the implementation process will provide an incentive for Member States to allocate resources on implementing the CPR. Moreover, providing advisory and support to Member States in their implementation efforts can support the swift implementation of the regulation and European standards.

The implementation of the CPR and harmonised standards is expected to take considerable time – due to the national legislative systems and because of the need to give national producers sufficient time to adapt to European requirements and standards.

The rectly amended Late Payment Directive agreed by the European Parliament on the 20th October 2010 establishes a minimum standard for the EU Member States with regard to Business to Business relations between public entities and private businesses. The implementation of the Directive in Member States will require active monitoring and control in terms of continuously measuring the proportion of payments from public and private institutions that are late and the implementation and enforcements of relevant punitive damages and fines.

[43] EUR-LEX, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31989L0106:en:HTML
[44] EUR-LEX, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:282E:0001:0052:EN:PDF

The Framework Directive 89/391/EEC[45] lays down general principles concerning the prevention of occupational risks, the protection of safety and health, the elimination of risk and accident factors, and the information, consultation, balanced participation (in accordance with national laws and/or practices) and training of workers and their representatives. It requires in particular the employer to evaluate all risks relating to the health and safety of workers, to put in place preventive measures and to provide appropriate protection.

One of 19 individual Directives has also been adopted to cover specific categories of workplaces or workers or specific risks. Directive 92/57/EEC covers the construction sector and foresees for example the designation of one or more coordinators for safety and health matters during the project preparation and execution stages if more than one contractor is present.

Building on the Community Strategy 2007-2012 on health and safety at work and the Commission Communication on the practical implementation of Directive 92/57/EEC (COM (2008) 698), minimum requirements of health and safety at work in construction should be strengthened at MS level. This will require increased focus on training of control bodies, monitoring of surveillance activities and training and certification schemes for construction workers.

Resource implications for companies

Adapting to harmonised standards may be costly for construction companies in the short to medium term, but is likely to reduce transaction costs in the long term. The implementation of the changes around the Services Directive is not expected to result in any substantial expenses for companies.

Risks and risk mitigation strategy

SMEs may lack the capacity to identify and adapt products to new standards, and Member States will therefore need to carry out national capacity building measures to ensure that small and medium sized enterprises are fully prepared to meet new requirements and EU standards. Construction clients will need to include the requirement for meeting these standards during the procurement procedure.

A risk relating to the Services Directive policy measure is that national barriers to cross-border services still exist. These national barriers need to be addressed to ensure the realization of the internal market for services. In relation to the Late Payment Directive another risk is that the Directive may have a limited impact on payments both from public and private clients. Furthermore, the concrete impact will diverge from country to country, depending on existing national rules. It is important therefore that Member States and organisations representing the clients (public and private) communicate the need to meet the requirements to the relevant client organisations.

[45] *Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work, OJ L 183, 29.6.1989, p. 1.*

Roadmap for implementation

	2011	2012	2013	2014	2015
Monitoring and support for implementation of CPR, etc.	Establishment of peer learning group	Progress report by Task Force	Tier one countries	Progress report by Task Force	Tier two countries
Clarification of service directive	EC Guidelines and MS action plans		Tier one countries		Tier two countries
Implementation of late payment directive	Guidelines and MS action plans		Tier one countries		Tier two countries

6.4.2 Objective 2: Improving the skills base and work organisations practices through professionalisation and partnerships between private and public sector

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
Improving the skills base and work organisations practices through professionalisa-tion, partnerships between private and public sector	All subsectors	Establishing strategic partnerships between industry and education and training providers to ensure that national VET and CVET systems provide training for the construction sector which is sufficiently flexible in terms of content and modes of delivery to meet the diversity of demand in the sector, and secondly that education and training providers together with the sector has the capacity to identify emerging changes likely to impact medium term skills demands. A key focus should be to support development of the management capacity (especially for SME's) in key areas such as human resource, financial and quality, health and safety management (Clients through procurement process, MS, CVET & Sector)	3-5 years	Medium- but will need to be accompanied by measures to raise managerial capacity to sustain innovation through new leadership and work org practices Reduced skills mis-match challenges
		Supporting skills development through the dissemination and exchange of best practice to national stakeholders (EU) and through negotiations of collective agreements and the rights to CVET at the local/ and or national sector level.	1-2 years	Medium
		Improve strategic capacity to deploy ICT, e.g. building information management systems, e-invoicing systems and Enterprise Resource Planning/accounting systems, in business processes, develop	3-5 years	High (also productivity gains)

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
		business models and products through government and sector initiatives and industry partnership with CVET institutions (Sector, MS, Intermediary bodies, CVET institutions).		
		Improve the capacity and systems of public and private clients' procurement departments to select the economically most advantageous tenders and taking into account relevant sustainability conditions in construction contracts by providing easy to use guidelines for small businesses – including easy to access on-line advice and developing standard proposal assessment tools and creating standards for roles of clients, advisors and contractors(EU, Sector, MS, banks, CVET institutions)	3-5 years	High
		Member States and sector organisations together with educational institutions should consider launching and supporting campaigns to make the construction sector more attractive to talent (MS, CVET, HE and sector).	3-5 years	High impact – in the longer term

Note: VET refers to Vocational Education and Training, CVET refers to Continuous Vocational Education and Training.

Challenge

Missed opportunities concerning productivity levels, uptake of technologies in products, processes and business models, avoiding health and safety hazards, and the ability to attract and retain talent is the result of management and working organisation practices which put a low premium on the quality of skills as a competitive parameter. Addressing skills needs and developing the existing management and working organisation practices constitutes a key challenge for the sector, which will require increased collaboration and knowledge sharing between social partners at national and European level.

Furthermore, strong and professional management and planning capacity is important to reduce failure costs and run a sound business. However, management capacity in construction companies and especially in SMEs is often relatively weak as self-employed or small businesses tend to have a strong focus on their core business activities instead of administration, business and human resources planning. Furthermore, ICT use in the sector is not very advanced. For example, accounting and finance systems and electronic invoicing systems are only used by small proportions of SMEs, and the sector thus faces unnecessary high levels of transaction and interest costs. This need for professionalisation

of the sector is further hampered by the low degree of organisational participation among professionals, companies and workers in many parts of Europe.

Another important issue is that generic skills associated with 21st Century jobs and occupations are so far poorly addressed and integrated into VET and CVET provision. Generic skills such as problem orientation, problem solving, communication, entrepreneurial skills and design are critical to cross occupational collaboration in work teams and to exploiting value added creation at the firm level through employee and market driven innovation. Cross functional teams spanning across traditional sector boundaries is critical to explore opportunities relating to buildings as energy efficient systems and eco-building renovation etc.

Collaborative approaches to meeting these skills demands, for instance partnerships between industry and educational institutions, will in many Member States require changing leadership practices in the construction sector. Not least in the many micro enterprises that represent the majority of firms in the sector.

Objective for the sector

The quality of human capital is strongly dependent upon making the business case, particularly by convincing SME managers that investment in skills and integrative work organisation practices is an investment that pays off. Sector bodies, social partners, chambers of commerce, and education and training providers have a joint role in formulating this evidence in a manner that reaches out to SMEs by tailoring it to practical realities.

So far there is relatively little known about the inter-linkage between employee and user driven innovation and the quality of learning arrangements[46]. Nevertheless, existing international literature indicates there is a strong correlation with further benefits from partnerships between industry and education and training providers. The quality of education and training for the sector is about improving existing education and training programmes at all levels through strong partnerships. Another aspect is improving the sector's capacity to use existing methods and studies regarding anticipation of skills needs and in the medium to long term to inform revision and development of responsive future oriented programmes.

Thirdly, sector and client bodies, the European Commission, and governments have a pivotal role in ensuring that existing instruments developed within the Objectives 2010 and the strategic priorities become broadly known, recognised and deployed in the sector as a means to improve efficiency, effectiveness and impact of education and training measures in the sector within the context of lifelong learning. Use of existing instruments such as EUROPASS, recognition of prior learning, mobility programmes, and the EQF are just some examples.

[46] Shapiro, H (forthcoming): "The Nordic dream - employee and user driven innovation through coherent workforce development approaches targeting the low skilled and the skilled work force", paper prepared for the Nordic Council of Ministers

Indicators

Possible indicators are:

- Number of sector qualifications in which core skills are embedded at Member State level;
- Number of individuals that access and participate in CVET upper secondary level/tertiary professional education through recognition of prior learning measures at MS level;
- Number of students that start and complete an upper secondary VET and HE qualification within the sector;
- Formal level of qualification in the sector – by sub-sectors/age/gender MS level;
- Use of mobility instruments- VET students, employees, employer and employee representatives, teacher and trainers- by age, gender level of formal qualification and MS level;
- Unemployment patterns by the highest level of qualification within the sector;
- Investment patterns in CVET (collective funds, direct investments individuals, companies, public expenditure on CVET for the sector);
- European payment index survey: Prevalence of late payment, insolvency by sector and size of company;
- E-skills embedded in curriculum for the sector;
- Management certificates accredited for persons in the sector;
- E-business uptake by SMEs ('e-business watch for construction sector').

Subsector and value chain relevance

In the short term, the skills challenge is particularly important for the Onsite construction and Manufacturing of construction materials subsectors. However, an improved skills base will need to be accompanied by integrative work organisation practices to have a full impact. In order to ensure the full benefit of an integrated value chain, and innovation opportunities linked to the deployment of enabling technologies, it is important that demands to skills at all levels in the medium term are addressed now. Coherent approaches with clear output and outcome based targets can provide an enabling environment in which skills policies may contribute to improved capacity to exploit client-, employee- and user driven innovation, which can improve productivity, but also the quality of processes and services delivered. Employee and user driven innovation through Life Long Learning (LLL) policies is of a particular relevance for the sector and sub-sectors as well, given the composition of the construction sector with many micro enterprises and limited resources and capacity to engage in R&D based forms of innovation.

Policy measures and intervention logic

To ensure long term structural alignment between the skills needs of the sector and the curricula of relevant national vocational education and training programmes, FIEC and EFBWW are well positioned in collaboration with the European Commission to stimulate the uptake of a skills agenda in the European sectoral social dialogues at national and local level through dissemination of promising practices, and through the use of mobility instruments aimed to learning from promising practices at Member State and local level within the sector.

Within the existing sectoral social dialogue at a European level the sector and client representatives should initiate a consultation with counterparts at the national sector level to explore the relevance and value-added of setting up a European Sector Skills and Employment Council to accelerate and stimulate innovative work organisation and skills based performance strategies to improve the competitiveness and attractiveness of the sector as an employment and career destination[47].

The European Commission should in partnership with sector representatives and national governments encourage the uptake of instruments within the LLL programme both regarding mobility and development projects, so that practitioners within the sector can learn from each other at Member State level and share promising practices. Sector representatives should also be encouraged to participate in such measures in order to disseminate best practices. It is critical that sector representatives at the EU level in collaboration with the European Commission and Member States take actions to encourage revision of the existing curriculum; particularly to ensure that core skills is embedded in the VET curriculum of the sector. Member States should be encouraged actively to use outcome based indicators to ensure an on-going adaptation of curriculum to emerging demands in the labour market.

The EU should increase the mobility of labour in Europe, through for example the skills passport for construction workers in Europe (EU), as this can help solve short to medium term workforce shortages, for instance in connection with large scale building projects. The European Commission's DG EAC is already examining opportunities for developing a European Skills passport on the basis of the current EUROPASS system. It will be relevant for sector organisations to actively engage with this process so that the resulting skills passport will be relevant for both highly skilled workers and low skilled workers in the sector. Similarly, the actual implementation of the skills passport and how it is completed and verified is of real importance to the sector and its subsectors.

The European Social Fund can be used by Member States to invest in education and training policies geared at upgrading skills, in actions favouring the mobility of workers and attracting talents, and these activities should be promoted by the EU and Member States. At European level, development of ESCO (European Skills/Competences, Qualifications and Occupations), a standardised taxonomy on occupations and skills to facilitate the mobility of workers across the Union will also further the mobility of workers within specific occupations. Equally, the promotion of a competence-based approach to the validation of competences gained outside of formal education and training will improve the possibility of construction workers having their competences recognised and accredited.

In partnership, sector organisations, Member States, ICT promotion agencies and CVET institutions should work together through government and sector initiatives to improve the strategic capacity to:

[47] For more information on the possible setup of European sector skills councils, see European Commission (2009): A Shared Commitment for Employment; Ecorys (2009): Sector Councils on Employment and Skills at EU level. A study into their feasibility and potential impact; European Commission (2010): New Skills for New Jobs: Action Now, http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=697&furtherNews=yes

- Deploy ICT, e.g. building information management systems, e-invoicing systems and enterprise resource planning (ERP)/accounting systems, in business processes;
- Develop business models and products.

This measure has a potential high impact on competitiveness through a reduction of transaction costs and emergence of new products and services;

The EU in collaboration with Member States should improve the capacity and systems of public and private client procurement departments to select the economically most advantageous tenders while taking into account relevant sustainability conditions in construction contracts. This should be addressed by providing flexible training solutions for relevant professionals, developing standard proposal assessment models and creating minimum standards for roles and responsibilities of key participants involved in construction contracts (e.g. clients, contractors, advisors).

Easy-to-use guidebooks on methods for anticipation of new skills made available to sector representatives at the national and regional levels could together with peer learning networks stimulate the capacity of the sector to monitor changes in the labour market likely to impact skills demands in the medium term. This could improve the overall responsiveness of VET systems at national level. It could also offer a framework for partnering with education and training.

The 7th Research Framework Programme offers a platform for socio economic research on LLL. Sector bodies at national and EU level should take action to stimulate the formation of a consortium aimed at improving the scientific knowledge base regarding the inter-linkage between coherent LLL strategies and the impact of user and employee driven innovation through “shop floor workers”.

It is important that sector representatives at the EU and the national levels in collaboration with the Commission and Member States take action to improve the knowledge base about investment patterns in LLL, and in particular to disseminate good practices regarding the integration of training matters in collective bargaining including its financing. Investments in CVET can alleviate the effects of demographics in so far that investments in CVET can improve overall functional job mobility as workers get older; the alternative may not be early retirement, but new job functions that are less physically demanding. In the Netherlands for instance there are promising examples of how the combination of collective agreements with rights to education and the use of recognition of prior learning within the sector has offered such opportunities to elderly workers.

Member States, client and sector organisations can consider launching and supporting campaigns and other communication activities to make the construction sector more attractive to talent. There are good examples in France, Sweden and the Netherlands where successful recruitment campaigns have led to increased influx during the growth period prior to the crisis. These are good practice examples from which to learn.

Furthermore, Member States and sector organisations working together with educational institutions can establish strategic partnerships to give the construction sector better opportunities to voice the needs for skills and help educational institutions recruit

students for the relevant programmes. Strengthening the cooperation of educational institutions and the industry as well as developing effective image improving campaigns will ensure access to skilled workforce also when the construction sector comes out of the crisis.

Finally, the strengthening of existing efforts to make the sector more safe and clean to work in is important. Already there are several Member State initiatives (Italy, Spain, UK, Nordic countries, etc.) establishing health safety training and certification for construction workers operating on construction sites. Equally VET programmes are introducing health and safety as part of the programme, but unfortunately, there are still countries and areas where such measures are inadequate or non-existent.

Without an integrated approach to policy making with emphasis on the connectivity between innovation performance, new skills for new jobs, and active labour market policies, the impact of any measure will likely be low and not sufficiently robust and scalable.

Resource implications for companies

Resource implications will depend upon which models are deployed to fund VET and CVET in the future. It should be recognised that although training comes at a cost there are also major savings to be made through improved productivity, lower failure costs, and less work related accidents.

Risks and risk mitigation strategy

There are numerous models of co-funding training including levies, collective competence funds and reduction in taxes etc. The main challenge is to identify practices that are best suited to the sector and the institutional framework in each of the Member States. To stimulate uptake of training (and as a risk and mitigation strategy), sector representatives at EU and national levels should prepare the business case for why investment in training pays off and disseminate this widely to relevant stakeholders. Any financial instrument adopted which involves public funding should be carefully examined, possibly through pilots to avoid distorting market effects and dead-weight.

Roadmap for implementation

	2011	2012	2013	2014	2015
Strategic partnerships	Thematic conference with social partners and governments	Tier one countries commitment	Progress report (DG Education)	Tier two countries commitment	Progress report (DG Education)
Exchange of best practice	Analysis and dissemination of best practice		Progress report (DG employment)		Progress report (DG employment)
Improve strategic development and deployment capacity	Establishment of peer learning groups		Progress report (DG Education) Tier one countries		Tier two countries

	2011	2012	2013	2014	2015
Procurement	Analysis of capacity building needs and development of European guidelines for procurement	Launch of capacity building measures	Tier one countries	Progress report (DG Enterprise and Industry)	Tier two countries

6.4.3 Objective 3: Improve innovation capacity and performance in all its forms in the sector with a view to increase productivity, sustainability and value added in all parts of the value chain

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
Improve innovation capacity and performance in all its forms in the sector with a view to increase productivity, sustainability and value added in all parts of the value chain	All subsectors	Addressing future demands from grand global challenges in national and European research programmes to stimulate development of new sustainable custom-made materials (producers) and designs (professional construction services) (EU, MS)	5+ years	High
		Stimulate public and private demand for excellence in life performance of constructions - lower maintenance costs/ life-cycle costing and the development of innovative business models and solutions through financial incentives, regulation and where relevant contractual arrangements (DBFOM, PFI, etc.) (EU, MS)	1-3 years	High
		Increase uptake of research outputs through demonstrations (incl. living labs) of new products and processes, tackling insurance issues around prototypes, providing financial incentives and ensuring a stronger orientation of R&D programmes towards industry needs and industrial deployment of technologies. Furthermore, increase industry participation in R&D programmes (EU, MS, Sector).	3-5 years	Medium to high

Challenge

Enabling technologies such as nanotechnology, biotechnology and ICT can stimulate innovation and growth in the construction sector through the development of new products, services and processes[48]. However, much of the construction sector is relatively traditional, with low uptake of R&D and a subsequent low innovation performance. There

[48] ObservatoryNANO, http://www.observatorynano.eu/project/document/2492/

are however also examples of very innovative construction companies implementing high tech solutions.

Much of the R&D leading to new construction products is taking place in the Manufacturing of construction materials subsector or other related sectors such as the IT sector, machinery and textiles. Other innovations take place in processes, working methods and innovative applications of known technologies. Technologies and relevant innovations for the construction sector are often already available, but outputs of R&D are not adapted to, spread, implemented or applied substantially and sufficiently in construction companies. However, good practice examples of companies that are successful in the take up of R&D results exist and these should be disseminated more widely.

The lack of skills (mainly within SMEs) for promoting, actual use, integration and implementation is considered an important underlying barrier, but other factors are low levels of collaboration/low integration of value chains in the sector and across sectors, as well as low levels of dissemination of good practices. Whereas major companies think of R&D as an integrated part of their business model, SME investments and participation in R&D programmes is often limited.

Furthermore, clients require timely access to relevant knowledge and information on the assessment of new products, components and technical solutions in order to avoid defects and problems after including them in the specification of future constructions.

Objective for the sector

Improve innovation capacity and performance in all its forms in the sector with a view to increasing productivity, sustainability and value added in all parts of the value chain.

Indicators

Possible indicators include:

- Number of patents in the construction industry aimed at solving global challenges;
- Use and development of new materials aimed at solving global challenges;
- Funds for R&D projects aimed at solving global challenges;
- R&D performance data, e.g. investments and participation in R&D programmes;
- R&D results converted to real tested and certified products and services in the construction sector;
- Investments in ICT and other technologies;
- Innovations achieved (products, processes and services).

Subsector and value chain relevance

The need to increase R&D participation and uptake of outputs is especially relevant for construction companies and building product suppliers. Indirectly, the Real estate services sector, private owners and the public sector (as clients) can profit through lower total life cycle costs, quicker processes and better products, subject to appropriate test results. Innovation within the Professional construction services subsector (engineers, architects, i.e. in design and services) is on the increase; however also here it is important to create awareness of new materials, processes, functionalities and possibilities.

Policy measures and intervention logic

Europe needs intervention to stimulate public and private demand for excellent service and whole life performance of constructions. A focus on sustainable life cycle costing and thus lower maintenance and operational costs is likely to spur a drive towards the development of innovative business models and construction solutions. These interventions must include:

- The introduction of attractive financial incentives for private owners and investors in constructions;
- Implementation of relevant regulations;
- Where adding value relevant contractual models (DBFOM, PFI, etc.) should be promoted.

EU wide innovation policy, including the Competitiveness Innovation Programme and several other Framework Programmes, secures a major investment flow in R&D throughout sectors and businesses in Europe. The construction sector has an increasing involvement in these FPs over the years[49] and the construction sector and its platforms (like ECTP) are active in participating in the available EU wide innovation schemes, such as the recent Smart Cities initiative. However, sector representatives question the industry and market orientation of the existing European Research programmes and identify a need to focus more on deployment aspects.

It will be necessary to increase industry participation in R&D programmes and uptake of research outputs through demonstrations (incl. living labs) of new products and processes. However, there are issues of liability and insurance when introducing innovations in constructions. It therefore will be important to promote existing practices and create a knowledge base on tools and practices for the market introduction of innovative solutions. Existing practices for supporting the introduction of new innovations at the European level include the European Technical Approval and the Environmental Verification Scheme and at national level schemes like the Pass Innovation in France.[50] Common to these schemes is that they are lengthy and costly for small enterprises to use. Moreover, insurers have in general no access to the results of the testing related to these schemes to support them in the risk assessment of similar solutions. These issues still need to be addressed.

Other solutions could also include the introduction of wrap-up insurance that is shared by all parties involved in an innovative construction project. Such wrap-up insurances can be relatively expensive, but because the costs are shared among covered parties the cost per party may be acceptable (although not necessarily cheaper than individual coverage) given the potential impact of the innovations on construction performance. Another issue that still needs to be addressed in this model is associated with sorting out intellectual ownership among partners.

Furthermore, it is likely that financial incentives for construction companies to increase the uptake of new technologies could drive growth.

[49] According to interviewed industry leaders with sector organisations such as ENCORD and ECTP.

[50] http://www.cstb.fr/fileadmin/documents/actualites/communiques_dossiers_presse/2008/Pass_Innovation_octobre_2008-BD-sans-traits.pdf

The development of new products and services could address important societal goals such as:

- Improving energy efficiency;
- Improving waste management;
- Meeting changing demands;
- Focus on new flexible solutions for retro-fitting;
- Lowering failure costs (e.g. through the use of virtual construction systems);
- Improving health and safety.

Although efforts relating to technology uptake and innovation are the responsibility of the sector itself including clients, facilitating roles are foreseen for Member State governments and the EU, for instance by providing incentives and funding for R&D, entrepreneurial support, supporting the development of testing opportunities, harmonization of standards, dissemination of best practice etc.

The impact of the proposed overall package of measures to improve R&D and innovation for competitiveness performance is medium to high, both in terms of economic competitiveness as well as in terms of social or environmental sustainability. The time horizon of the impact is medium to long term. Implementation of new products, services or processes often needs somewhat longer periods of time to be fully integrated and especially in the construction sector also due to the need for testing and evaluating products before using them in full scale.

Resource implications for companies

The expected costs for the sector are medium. Integration of new products, services and processes requires time and resources for implementation (including purchase of new systems, tests and evaluations, the installation of new materials and components and training). Integration efforts may also entail opportunity costs (trial and errors of new products and processes).

Risks and risk mitigation strategy

The phase of practical implementation is always the important turning point; will innovations work or will they be widespread? This needs an open mind, something that is not always at hand within all parts of an often conservative construction sector. Furthermore, the tailoring and uptake of enabling technologies may be hampered by the lack of European standards. Further standardisation efforts are needed, for instance in the area of ICT in construction specification and contracting processes. This could be met by large scale demonstrators as practised in some Member States, but will require harmonisation of such standards across the EU. Good facilities and opportunities for tests and evaluations of new products and solutions will be necessary.

Specific risks include:

- Innovation vs. level playing field competition: Major firms dominate IPR and patents, which might restrict the use of innovative solutions. As a result, large-scale firms might get a monopolist position (or oligopolies);
- SMEs do not have the knowledge and resources required for participating in R&D programmes or sufficiently find or use the outputs.

Possible risk mitigation measures include involving SMEs and their organisations early on in the process. This could be facilitated amongst others by increasing the focus on deployment of technologies in existing construction clusters and among SMEs. Also, sector organisations and Member States could support skills development programmes for SMEs.

Roadmap for implementation

	2011	2012	2013	2014	2015
Addressing future demand	Identification and integration of key themes in FP for research, CIP and national programmes (ECTP and IPTS)		Progress report (DG Research)		Good practice compendium (DG Research)
Stimulate public and private demand	Establishment of peer learning group	Good practice compendium (DG Enterprise and Industry)	Progress report (DG Enterprise and Industry) Tier one countries		Progress report (DG Enterprise and Industry) Tier two countries
Stimulate industry participation in R&D programmes and uptake	Identification of best practice (ECTP and DG Research)		Progress report (DG Research) Tier one countries		Progress report (DG Research) Tier two countries

6.4.4 Objective 4: Higher sustainability in design, products, processes and operations

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
Higher sustainability in design, processes, products and operations	**All subsectors**	Strengthening Green and sustainable public procurement initiatives (incl. implementation of public procurement directives) to allow for wider adoption of the comprehensive guidelines at Member States level considering the importance of quality in public procurement (EU, MS)	1-3 years	Medium to high impact
		Using standards, eco-label and regulations (EPBD) to drive innovation into the performance of sustainable solutions covering social, health, safety, economic, and environmental dimensions (EU, MS)	3-5 years	Medium to high impact
		Stimulate employee – and market driven innovation relating to functionality in design, products	1-3 years	Medium impact

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
		and services through capacity building, demonstrators- and dissemination of best practices, SME support/certification and partnerships with CVET (MS, CVET, intermediaries, sector)		
		Offering and promoting (incl. ERDF) attractive financial and other incentives for private & public sector owners to initiate sustainable retrofitting (or demolition) with positive impact on social cohesion, indoor climate, external environment (e.g. waste reduction per m2), CO• emissions and the share of renewable energy (EU,MS)	1-2 years	Medium to high impact
		Monitor impact of new, methods, materials and solutions on health & safety in processes, CO• emissions, and inner climate; waste (reuse, recycling) per m2 for constructions, share of renewable energy (also considering constructions in operation over time). Where necessary adjust regulations and policies to address new conditions and performances. In relation to this, new performance indicators should be developed to provide a more holistic way of measuring sector performance.	3-5 years	Medium to high impact

Challenge

The construction sector covering all subsectors (including the Real estate services sector) needs to achieve significant improvements in sustainability performance not just for the sector itself but also for the long term sustainability of the resulting constructions and for other economic sectors in order to meet the 20-20-20 strategy, but also other important social, environmental and economic goals. This is important not just for new constructions, but especially for the renovation and maintenance of existing constructions. Significant improvements are required in relation to:

- Energy consumption in production of construction products and components;
- Waste management and recycling;
- Health and safety at work;
- Use of natural resources;

- Energy consumption and production in end-products (constructions) including making it feasible for tenants/owners to act energy efficiently;
- Achieving social benefits in terms of work conditions, work processes and quality of end-products (constructions).

There is a need for public intervention because the public sector itself is an important investor in constructions and should lead the way. Furthermore, all experiences (see case studies) indicate that public interventions are needed to create incentives, guidelines and regulations that can drive immediate change in the construction sector and among investors/developers. Financial incentives are especially required to make sustainable investments attractive among the many private house and flat owners.

The relevant EU directives, guidelines and standards concerning environmental, employment and energy aspects are in place but the actual implementation at Member State level is slow and since construction companies, owners and clients will only respond to enforced regulations there is likely to be a delay in targets being met.

The European Regional Development Fund (ERDF) has allocated a significant proportion of funds to investment in energy efficiency and renewable energy in buildings (4-5% of funds); however the ERDF is not experiencing any great demand for such kinds of projects.

Objective for the sector

To achieve higher sustainability in design, processes, products and operations.

Indicators

Possible indicators include:

- CO2 emissions in the sector and subsectors;
- CO2 emissions of constructions (new and old buildings);
- Use of natural resources by construction sector and constructions;
- Construction and Development waste production per square meter (buildings);
- Quality of indoor climate in buildings (ventilation, etc.);
- Failures/defects in buildings (e.g. moist, mould, noise, higher consumption of energy than set by regulations);
- Fatalities and accidents in construction;
- Materials and waste recycling;
- Renewable energy share of total energy production;
- Social benefits in terms of employment, reduced crime levels, health and safety, etc.

Subsector and value chain relevance

This important objective is relevant for all subsectors of the construction sector including public and private clients. At the same time, it opens up for changes to the construction value chain to allow new sectors and intermediaries (banks, insurance companies, transport, etc.) to contribute more substantially to the improved sustainability of constructions including sectors like finance, energy, transport and mining.

Policy measure and intervention logic

Below we present a set of instruments that should be initiated to boost the sustainability performance of the construction sector and constructions. These are:

- Public procurement not just in relation to new buildings but especially in relation to maintenance and retrofitting (or demolition) of existing buildings/constructions. Already targets and guidelines for Green Public Procurement have been launched by the EC and most MS have established national plans for Sustainable/Green Public Procurement. However, evidence suggests that minimum requirements may not be enough to reach goals. As a consequence, public procurement will need to consider a greater proportion of contracts meeting comprehensive requirements which include integration of renewable energy resources in constructions. The speed of implementation including promotion of the comprehensive standards, training of practitioners and monitoring should be increased at Member State level. The public sector will only contribute adequately to energy efficiency and meeting environmental targets by ensuring a full implementation of the public procurement directives. For the EC this means urging Member States to be more ambitious in national plans and to support them with knowledge of good practices and solutions;
- Various guidelines and/or minimum standards have been established for the energy and environmental performance (for example for inner climate, waste recycling, energy consumption and renewable energy share of total energy production) of the sector, the key products and components used in the sector and the resulting constructions and operations. These are supplemented by a myriad of national standards and regulations at different levels of energy efficiency and environmental performances. It is important that the standards used and implemented are as ambitious as possible if targets set for Europe are to be met;
- Financial support (loans, subsidies) and tax relief incentives for owners of buildings and constructions to create sustainable solutions. There are many different examples of EU level and Member States initiatives to help finance energy efficient retrofit solutions partly undertaken to support the construction sector in times of crisis and/or to achieve state reductions in carbon emissions and energy consumption. However, not all Member States have introduced such incentives, some have introduced measures that only marginally address the sustainability issues, and in other countries further incentives are needed to reach the targets. Overall, too little energy efficient retrofitting has so far been carried out at European level (estimates suggest that double is needed to meet the 2050 target). The case studies presented in this study from Austria, France and Belgium indicates that such incentives are not helpful. To support the implementation of financial measures at Member State level, the EU should identify, assess and disseminate good practices in financial incentives measures aimed at different building owner groups. Furthermore, ERDF has allocated funds that are earmarked to sustainable construction projects, but so far the ERDF has experienced insufficient demand for such project funds. It is necessary to strengthen the promotion of this opportunity through the relevant Member States, regional and intermediary organisations and institutions;
- Supporting innovation, product and service development to facilitate the emergence of new and better solutions that reduce CO2 emissions and/or production of renewable energy, natural resource consumption, materials recycling and waste management. Already, a joint programme has been launched across programme heads inviting project application for start in 2011 and the large scale PPP initiative will also contribute to this. However, substantial efforts are still needed at Member State level to promote and build on these initiatives through capacity building, large scale demonstrators and dissemination of best practices, SME support/certification and partnerships between the sector and CVET (MS, CVET, intermediaries, sector);

- Many initiatives undertaken at European or Member states level seem to be working and delivering good results. It is important that good practices (in terms of diagnosis, financial incentives, technologies and products, complete systems, value chains and business models) are disseminated and transferred to accelerate progress towards sustainability goals. Several Member States have for instance established Green building councils and the European Commission could work with these to undertake awareness raising activities and adoption of good practices;
- It will be important also to monitor the impact of new methods, materials and solutions on health and safety in processes, CO2 emissions, inner climate waste (reuse, recycling) per m2 for constructions and share of renewable energy (also considering constructions in operation over time). New innovations are likely to create new conditions and implications for the sustainability of construction. Where necessary the EU and Member States will need to adjust regulations and policies to address new conditions and performances. In relation to this, new performance indicators should be developed to provide a more holistic way of measuring sector performance. These could be developed as whole life multi dimension indicators which combine indexes of initial construction costs, life cycle costs of products used and continuous operational performance according to specific health, social, economic and environmental criteria. This should better reflect the complexity of construction performance.

Sustainability in construction requires a wide range of different parallel public policy measures. One single measure will not deliver the necessary results. The optimized combination of policy measures will deliver the best results for each of the Member States and Europe as a whole. The elements that Member States should combine to achieve the best possible results are green and sustainable public procurement of constructions, setting and enforcement of minimum requirements of constructions, professions, processes and key products, financial and other incentives for investments in sustainable solutions, funding of innovation and R&D activities to develop sustainable solutions, dissemination of good practices, and raising awareness.

A closer monitoring of construction markets and public procurement processes and the inclusion of additional requirements in procurement processes can be quickly implemented and would also be expected to have a substantial impact on the competitiveness of European enterprises vis-à-vis non-European enterprises in the short to medium term.

Sustainable/green public and private procurement practices focusing more on quality and the whole life economically most advantageous proposals will have immediate impact on the competitiveness of the sector and the same can be said about attractive financial incentives for construction owners to undertake sustainable retrofits or demolitions. The other measures will take effect in the medium term (between one to three years).

The proposed policy measures all aim to support life cycle approaches to implementing sustainable performances of constructions. Furthermore, combined effectively the policy measures will create substantial competitive edge not just in relation to achieving European goals, but also in relation to becoming competitive in a global market.

Resource implications for companies

Additional requirements for participating in public procurement processes may increase documentation costs for companies and the adoption of new approaches and methods will also require investments by construction companies. However, if the public sector stimulates advanced demand, as have been seen in relation to e-gov, public procurement can also act as an innovation accelerator.

Risks and risk mitigation strategy

The proposed policy measures require attitudinal change away from short sighted investments and quick economic results among clients and suppliers. Also, the policy measures require substantial skills developments and collaborative effort across trades.

Roadmap for implementation

	2011	2012	2013	2014	2015
Strengthening green and sustainable public procurement	Establishing peer learning groups focusing on capacity development		Progress report (DG Environment) Tier one countries		Progress report (DG Environment) Tier two countries
Drive innovation in performance of sustainable solutions	Review of existing measures and needs for policy action (DG Climate)		Progress report (DG Climate)		Progress report on performance of sustainable solutions (DG Climate)
Promote sustainable retrofitting	Establishing peer learning groups		Progress report (DG Environment)		Progress report (DG Environment)
Monitoring impact of new methods, materials and solutions	Progress report (Pro Inno)		Progress report (Pro Inno) Tier one countries		Progress report (Pro Inno) Tier two countries

6.4.5 Objective 5: Strengthening the global competitive position of the sector

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
Strengthening the global competitive position of the sector by ensuring a level playing field	Construction, building products suppliers, professional construction services and real estate services	Assess the practices of EU contracting authorities regarding access of non-EU Enterprises to EU contracts with particular focus on the enforcement of EU rules and regulations in relation to anti-corruption, EU funds, social and environmental requirements and framing of Abnormally Low Tenders. It will be necessary to introduce stricter and more effective enforcement of EU law	1-3 years	Medium to High

Objective	Relevant sub-sectors	Suggested policy measures	Time horizon for impact	Expected impacts on competitiveness
		and regulations.		
		Monitor the application of state aid regulations to identify possible distorting effects on competitiveness also between public and private real estate investors/developers. Where necessary introduce more effective enforcement of regulations.	1-3 years	Medium to High
		Stimulate networking and partnership arrangements as well as the development of a long term vision and strategy for the European Construction sector which can brand the sector in a global context based on criteria such as high quality, green and sustainable, cost efficient contracting behaviour in developing economies (EU, MS, Sector)	3 to 5+ years	Medium to high

Challenge

One of the strengths of the European Construction sector is based on a tradition of being pioneers. Construction techniques that were invented and developed in Europe form the basis of the built environment and influence the core businesses of today's construction industry throughout the world[51]. However, construction companies in other parts of the world are catching up and are able to provide construction products and services at lower prices mostly due to major technological advances, and fewer standards and regulations. The challenge for the European Construction Industry is therefore to remain one step ahead in terms of methods, technologies, innovative products and services, especially when addressing global challenges, such as climate effects, an ageing society, safety and security.

Future high growth construction markets are unlikely to be found in Europe. They are more likely to be found in emerging markets like the BRIC countries. Medium and large size construction companies (especially professional construction services and building products suppliers) in Europe seeking to expand their business and/or markets will therefore increasingly have to address markets outside the EU.

[51] http://cordis.europa.eu/technology-platforms/pdf/ectp2.pdf

At a time of severe budget constraints, public procurement processes and systems are challenged to ensure that enterprises and authorities operate and compete on fair terms for public contracts. Illegal actions by European or non-European enterprises in the construction sector must be prevented. It is the role of the national competition authorities to monitor and expose such illegal practices.

Another global factor influencing the competitiveness of the construction sector is developments in prices on energy and raw materials. There has been an increase in the price of energy and raw materials. China has invested heavily in raw materials, especially in Africa, and this is both having an impact on price and resources. One response from the EU in order to meet the challenge of rising prices of energy and raw materials is the 'integrated strategy' for raw materials.[52] The proposed strategy suggested three pillars in its policy responses to those challenges, which could pose a threat to the competitiveness of European industry, including the construction industry:

- Better and undistorted access to raw materials on world markets;
- Improved conditions for raw materials extraction within Europe, and;
- Reducing the EU's consumption of raw materials by increasing resource efficiency and recycling.

Objective for the sector

To strengthen the global competitive position of the construction sector.

Indicators

- A vision has been developed for the European construction sector in a global context;
- The number of large scale partnerships between firms and public sector organisations in emerging markets as well as between European firms and firms in emerging markets;
- Proportion of businesses with significant construction operations in emerging markets;
- Export trade of construction products to markets outside EU;
- Number of complaints and legal cases concerning illegal practices by extra and intra EU companies inside and outside the EU.

Subsector and value chain relevance

All three sub-sectors are relevant. *Onsite construction* will still face many obstacles including a lack of harmonised standards in Europe, non-tariff trade barriers in markets outside EU and illegal practices inside EU. The *Manufacturing of construction materials* subsector is of vital importance for increasing the global competitive position of all sub-sectors as innovative products can provide new techniques and a competitive edge for construction, engineering and architectural services. Furthermore, building products suppliers are very dependent on price levels for energy and raw materials. *Professional construction services* are also a key actor as they often provide services aimed at niche markets and specialised services/products. Professional construction services are not directly dependent on raw materials or energy consumption, but there is an opportunity to

[52] http://www.euractiv.com/en/sustainability/raw-materials-heading-a-global-resource-crunch-linksdossier-188526

provide consultancy services for solutions, for example within use and development of alternative energy sources.

Policy measures and intervention logic

It is essential to undertake an assessment of the practices of EU contracting authorities regarding access of non-EU enterprises to EU contracts with particular focus on the enforcement of EU rules and regulations in relation to anti-corruption, EU funds, social and environmental requirements and framing of abnormally low tenders. Where necessary there should be stricter and more effective enforcement of EU law and regulations. National competition authorities need to monitor closely public procurement processes to ensure that enterprises compete on fair terms and help expose illegal actions by European or non-European enterprises in the construction sector. Competition authorities could consider sharing their knowledge and experience with other European competition authorities to strengthen monitoring capabilities in EU27. It is important also that EU Member States respect EC negotiations and commitments at international level (e.g. Government Procurement Agreements).

Two very recent communications of the Commission address a future EU instrument to increase symmetry in access to public procurement markets in industrialised nations and major emerging market economies:

- COM(2010) 608 final "Towards a Single Market Act for a highly competitive social market economy - 50 proposals for improving our work, business and exchanges with one another" http://ec.europa.eu/internal_market/smact/docs/single-market-act_en.pdf (see page 18: *Proposal No 24: "In 2011, the Commission will present a legislative proposal"*);
- COM(2010) 612 final "Trade Policy as a core component of the EU's 2020 strategy" http://www.europarl.europa.eu/meetdocs/2009_2014/documents/imco/dv/com_com(2010)0612_/com_com(2010)0612_en.pdf (see page 17: *"In 2011, the Commission will make a legislative proposal"*).

The two legislative proposals take different approaches to solving problems associated with public procurement and extra EU involvement. The first view is that there should be a strict application of Government Procurement Agreements. The other approach is to take a "case by case" approach because each case is very complex and requires weighing up many factors. It is important that the advantages and disadvantages of each approach are assessed both in terms of feasibility of actual implementation and impact but also in order to ensure the full compliance with European rules and regulations covering all the areas concerned including health & safety, social and employment law, state aid regulations, etc.

It is important also to continue to monitor the application of state aid regulations to identify possible distorting effects on competitiveness also between public and private real estate investors/developers. Also in this respect, increased knowledge sharing across national competition authorities should help improve the effective enforcement of laws and regulations.

It will be important to ensure that SMEs have opportunities to bid for relevant public procurement contracts. Competition authorities could consider sharing their knowledge and experience with other European competition authorities to strengthen monitoring capabilities in EU27.

The EU, Member States and the sector organisations should establish a programme to facilitate networking and partnership development aimed at improving access to foreign construction markets. This programme should be established on the basis of a long term vision and strategy for the European construction sector which brands the sector in a global context based on criteria such as high quality, green and sustainable, cost efficient contracting behaviour in developing economies.

The partnership strategy should be aimed at the most important markets in Africa, South and Latin America, the Middle East as well as South East Asia. Key markets should be selected based on market growth rates, GPA and FTA agreements with the EC, opportunities to access natural resources and relevance of infrastructure investments. The partnership strategy should involve:

- Jointly developing and enforcing the relevant GPA and FTA agreements;
- Supporting partnerships aimed at joint concept development for sustainable solutions tailored to the relevant overseas markets;
- Capacity building in relevant countries and organisations to expose and eliminate corruption and to develop the local construction sector;
- Improved efforts to support the harmonisation of relevant employment and product and process standards.

The strategy will further require increased investment in R&D in techniques, technologies and services aimed at solving global challenges and will help to specialise and increase niche knowledge in European construction companies. This knowledge can be used to solve challenges within the EU and funding should therefore also be relatively easily accessible. In addition, exploring the political agenda at national level can increase focus on niche products and specialisation, for example through national R&D projects for an ageing society, national R&D strengths in enabling technologies etc.

The expertise can be transferred globally as the major global challenges become even more relevant, either through global policy such as climate deals or aging societies. The identification of good practice examples for joined-up approaches can encourage collaboration at MS and EU level. This should increase the impact of the results of R&D and provide more attractive solutions (one package).

The impact depends on the scale of use of the product or service. In the short term marketing of specialised and niche knowledge already successful in the EU could spur opportunities outside the EU, especially if a joined-up approach is used (service and product). Larger impacts can be expected of research in new materials and radical R&D solutions to global challenges, but the time horizon should also be expected to be medium to long.

Resource implications for companies

Companies will need to increase investments in innovation, uptake of R&D results and international capacity building and networking.

Risks and risk mitigation strategy

One risk is that increasingly complex contracting arrangements involving multi stakeholder involvement (both intra and extra EU) will make the tasks of procurement authorities and especially national competition authorities very difficult. It will be necessary to develop the knowledge sharing opportunities across national competition authorities in collaboration with EU authorities to stay on top of the latest developments. Another risk is that due to budget constraints, national public authorities may prioritise lowest price proposals and give less prioritisation to EU rules and regulations with the consequence of lower social and employment standards.

Roadmap for implementation

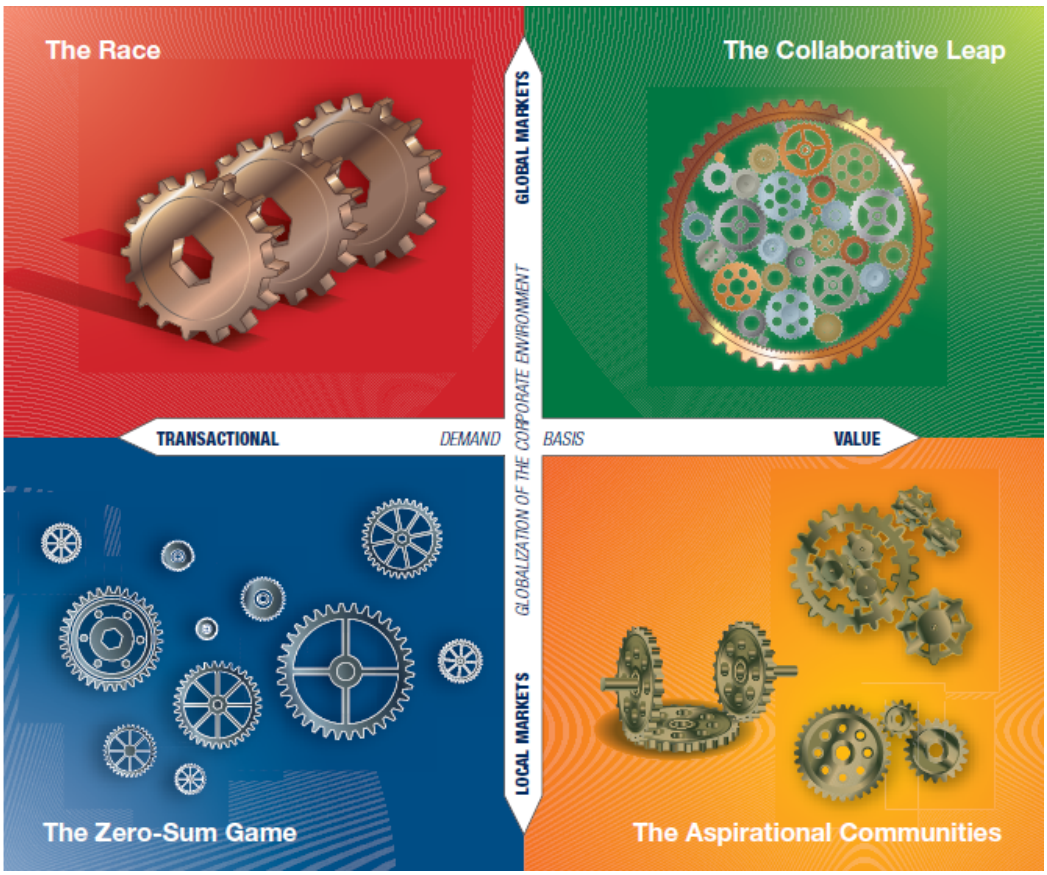
	2011	2012	2013	2014	2015
Assessment and monitoring of national practices	Yearly analysis of cases and assessment of need for policy action (DG Comp)	Yearly analysis of cases and assessment of need for policy action (DG Comp)	Yearly analysis of cases and assessment of need for policy action (DG Comp)	Yearly analysis of cases and assessment of need for policy action (DG Comp)	Yearly analysis of cases and assessment of need for policy action (DG Comp)
Assess and monitoring state aid regulation					
Stimulate networking and partnership arrangements as well as global brand strategy	Development of global brand strategy by construction task force	Implementation measures (DG Trade)		Progress report (DG Trade)	

6.5 Scenarios for the European construction sector

In order to explore the strategy, objectives and measures further, we analyse the impact of four different scenarios and their implications for the construction sector, the strategy, objectives and policy measures. The four future scenarios presented below represent different views on the possible futures for the European construction sector as a whole and in terms of the future political, economic, technical and societal development paths. The scenarios were originally produced by World Economic Forum of Engineering and Construction. They have all been considered plausible by the many stakeholders that contributed to their development. They allow for a discussion of future developments under conditions of uncertainty.

The four future scenarios have been developed for the construction sector on the basis of two main dimensions:

- Will the business environment become more global, or will it continue as a multitude of local markets?
- Will the demand and sector relations with its clients be transactional or value-based?



Source: World Economic Forum, Engineering & Construction: Scenarios to 2020

6.5.1 The Race

"While the global economy continues to integrate and grow, security concerns and lack of trust afflict relationships between both nations and businesses. With companies from the BRIC countries establishing a strong global presence, and investors in capital projects having a speculative and short-term mindset, the E&C[53] market is in a fiercely competitive race."

Implications for the European construction sector

The European construction sector has seen the emergence of several large, global players through merger and acquisition competing for construction projects at local, national and international level. The European players increasingly face competition from large, foreign-owned companies and consortia in European as well as foreign markets. Nevertheless, the new large players see opportunities in BRIC countries now also including the most developed African countries. Contrary to total solutions supplied from China and India these companies also supply products and services for capacity building at local level. This calls for high levels of productivity and innovation in Europe, but the pace of innovation is slow with construction companies working by themselves for themselves. Investments in R&D are limited and mostly focused on achieving higher levels of productivity through the development and uptake of ICT.

[53] The World Economic Forum, Engineering and Construction (E&C) Community and Center for Strategic Insight, "Engineering & Construction – Scenarios to 2020

Sustainability is not a key issue as investments and developments are mainly driven by regulators. The relatively strict environmental requirements in Europe make other world regions more attractive to construction companies, in particular for companies in the Manufacturing of construction materials subsector. The offshoring of both R&D and production is increasing. Highly productive and innovative construction companies in Europe are doing well, but new jobs are mainly created outside Europe. Small companies miss out on cooperation opportunities with global potential and still mainly serve local markets. Even for small construction companies, competition has intensified from both other Member States and accession countries in Europe (Turkey, Ukraine, etc.). Training programmes focus at supporting small firms and developing their capacity to engage in sizeable plant projects as subcontractors. However, this also means that those investing in training have success and others struggle to survive.

Key challenges for subsectors:

- *Onsite construction*: Increasing productivity; maintaining a competitive edge at local level and developing new markets outside the EU, labour shortages in key trades and retention of workers focusing on international markets;
- *Manufacturing of construction materials*: Operating on global markets, production and R&D relocated to low cost countries and closer to growth markets (BRIC), access to natural resources, energy and raw materials;
- *Professional construction services*: Other countries are catching up – European professional construction services are losing the competitive edge on markets focusing on costs and short term wins, competition for talents in both emerging markets and in Europe, focus on sustainable solutions is not finding a sufficient market volume, Professional construction services need new unique selling points.

Implications for policy makers

Policy makers in Europe are focusing on helping the European construction sector achieve higher levels of productivity while at the same time are witnessing production and R&D activities moving to countries outside Europe. The extensive restructuring of the sector is due to the competitive situation and result in significant redundancies which constitute a social and economic threat to local communities around Europe while leading to jobs in new markets for the best skilled workers and a need for re-skilling for many of the others. High level regulation could be a driver for innovation, for example in relation to energy efficiency and production.

Policy priorities:

- Increase productivity, mainly by pushing productivity gains through application of key enabling technologies;
- Facilitate knowledge and technology transfer to stimulate innovation;
- Internationalisation of companies, clustering of small companies to create international service partnerships, bilateral and regional agreements with individual emerging economies both at European and Member State level;
- Restructuring of companies and helping redundant workers; entrepreneurship and start-up programmes to create new companies offering renewable energy retrofit solutions.

Implications for proposed governance structure: Policy focus on global competitive issues has taken priority because the European market is in decline and foreign markets are more attractive. The Member State representatives are more interested in peer learning activities aimed at developing markets outside Europe for the European construction sector. Coordination between Member States is established concerning bilateral agreements with BRIC and other developing countries. Knowledge transfer groups established on new opportunities for redundant construction workers in facility management and other related sectors as well as entrepreneurship programmes for long term unemployed construction workers teaming up with ICT professionals (with ideas around new materials or energy efficiency).

6.5.2 The Collaborative Leap

"Globalization gathers pace amid geopolitical stability and international collaboration; regulatory harmonization and environmental awareness enable a collaborative leap in E&C. State agencies, research institutes and shifting coalitions of specialist companies combine to tackle novel and ambitious projects for clients who value sustainability, spurring multiple innovations and systems-level thinking."

Implications for the European construction sector

The European construction sector is characterised by a high level of collaboration between construction companies with building product suppliers and service providers. Innovation is an open and collaborative effort and often takes place between European and foreign companies in different parts of the value chain or in other sectors. Sustainability is a key issue for investors. The global harmonisation and enforcement of energy and environmental requirements has made it possible for the European construction sector to exploit the first mover advantage and the sector plus other linked sectors have experienced growth in global markets based on their know-how and joint venture concepts. But competitors are quickly catching up and European companies are investing heavily in R&D to stay competitive. The sector also faces a skills challenge due to demographic developments which increasingly requires construction companies to recruit researchers and engineers outside Europe or by working collaboratively with R&D centres in other parts of the world.

Small companies in Europe have experienced growth also in local markets due to increased focus on sustainability. They cooperate closely across the value chain and with clients to create sustainable solutions, many of which are created for public institutions through PPPs. The latest technologies and new materials are applied in these solutions, the latter partly because of structural shortages of previously used materials.

Key challenges for subsectors:

- *Onsite construction*: sustainable construction meeting needs and wishes of clients that set high standards for energy efficiency, maintenance costs and energy production capacity of buildings, increased productivity through value chain integration and innovation, and based on strong client incentives from regulations and subsidies;
- *Manufacturing of construction materials*: Investment in R&D e.g. advanced materials, green products, including links to alternative energy sources, developing

global markets through partnerships and ensure access to talent and knowledge intra and extra-EU;

- *Professional construction services*: Energy efficient and environmentally friendly solutions, developing global markets through open collaborative partnerships with clients; developing specialist competences in project management, sustainable town planning and climate effect prevention; ensure access to talent in key markets.

Implications for policy makers

Policy makers in Europe are focusing on helping the European construction sector achieve higher levels of productivity and innovation by bringing value chains together to solve grand challenges (large scale PPP initiatives). The skills challenge facing the sector requires a review of immigration policies and the facilitation of global R&D networks. Policy initiatives linked to NGO activities in developing countries allow the largest players and increasingly consortia of small companies to bid for large international plant projects in the BRIC and other developing countries. These include capacity building initiatives and self-sustaining energy projects at local level. Support is also provided for network development at all levels and for value chain cooperation, including support for exploitation of regulative environment in bringing about innovations (building as energy efficient systems).

Policy priorities:

- Sustainable construction to bring down energy consumption, increase renewable energy production and optimise social employment benefits of construction processes and products;
- Increase productivity through skills and knowledge development; supporting R&D including international R&D networks; supporting the uptake of PPPs for public sector infrastructure and institutions;
- Supporting the deployment of enabling technologies based on open innovation and partnerships;
- Supporting internationalisation of companies by facilitating harmonised international standards.

Implications for proposed governance structure

DG environment and DG energy play vital roles in coordination of policies and development of initiatives due to an increased focus on sustainable solutions. Green public procurement, PPPs and life cycle approaches are used as major drivers and the sector is responding with innovative networks at peer learning level across Member States. Other peer learning networks across Member States cover topics such as global harmonization of standards, PPPs, uptake of R&D results, talent retention and cross-border partnerships. The governance structure is struggling to balance the policy focus on international markets with that of intra EU market conditions as there are strong voices and arguments for focusing on both.

6.5.3 The Zero-Sum Game

"Wars, shortages and economic recession fuel a worldwide upsurge in nationalism, with mounting security worries and the politics of fear locking countries and business environments into a zero-sum game. Slumping demand, cost-conscious clients and the increasing difficulty of working internationally spell tough times for E&C companies."

Implications for the European construction sector

Protectionist measures are driving construction companies in Europe to focus on national markets and the competitive situation in national markets is tough due to limited demand and the presence of many suppliers. The key competitiveness factor for the sector is price and construction companies are thus eager to cut costs. Investments in R&D are limited and mostly focused on achieving higher levels of productivity through the use of ICT and cheap (but not always registered) labour. The sector faces difficulties in attracting skilled talent due to the public perception of working conditions in the sector. At the same time sectoral unemployment is increasing. Sustainability is not an issue apart from in those countries where other energy sources are associated with too higher risks and uncertainty. The only factor that matters for clients and construction companies is price. Many small companies in the sector have disappeared and only those companies survive that can meet client's demand for low price and run a tight and efficient business. At the same time, the grey market is experiencing a revival and so is the do-it-yourself market.

Key challenges for subsectors:

- *Onsite construction*: Increase productivity/reduce costs through efficient financial management and low wages. Direct sourcing of building products from national and international suppliers;
- *Manufacturing of construction materials*: Uncertainties with regard to energy supply and access to natural resources are driving efforts to develop alternative yet not necessarily sustainable solutions; sourcing of production capacity and building products in low wage countries. Wholesale sector under pressure as suppliers of materials seek to go direct to construction companies;
- *Professional construction services*: Reduce costs, access to talent, pressure on price margins and development of cost-efficient solutions.

Implications for policy makers

Policy makers in Europe are focusing on helping the European construction sector achieve higher levels of productivity. The extensive restructuring of the sector due to the competitive situation results in massive redundancies which constitute a social and economic threat to local communities around Europe.

Policy priorities:

- Increase productivity through better waste management, optimised use and recycling of materials;
- Geopolitical threats to energy supply and access to natural resources; initiatives to preserve natural resources, reduce consumption and exports of energy and natural resources;
- Restructuring of companies and helping redundant workers to find alternative employment for instance in off-site construction, restriction of immigration;
- Re-launching PPPs on security issues after private investors lose faith in PPPs;
- Some Member States highly depended on structural funds to fuel regional development due to government budget constraints and lack of natural resources.

Implications for proposed governance structure: Establishment of a pro-innovation platform to support the dynamics and the innovation potential in the various construction value chains. For example a permanent network similar to the *Manubuild* network financed under the 6th Framework in 2002-2006. Support schemes aimed at globalisation

initiatives for the most innovative companies especially in building products. The Governance structure focuses on establishing peer learning groups around energy supply solutions in constructions, reduction of natural resource dependency in the construction sector, good practices in construction projects optimising benefits of structural funds and industrialisation of construction (off-site construction).

6.5.4 The Aspirational Communities

"Amid international tensions and economic difficulties, globalization stalls. As societies look inwards, visionary leaders emerge at the head of aspirational communities who see E&C as strategically important for local socio-economic development. They catalyse collaboration between businesses and academia to find innovative solutions to local infrastructure needs caused by environmental and social change."

Implications for the European construction sector

Construction companies are eager to cut costs to increase their competitiveness in local markets, but companies are increasingly focusing on market opportunities linked to sustainable construction: 'Local sustainability' is on top of the political agenda at national, regional and local levels, and construction companies, local manufacturers and wholesalers of construction products and new materials are considered of strategic importance in meeting this objective. Sector R&D are application driven and are carried out by public research organisations and are strictly national. Off -site construction and prefabrication of energy efficient building modules is experiencing growth in Europe. This in turn has implications for the competence base in the construction sector; new installer and assembly skills are in demand and less so the more specialised and traditional trades. Local communities develop small zero carbon energy production units based on local biomass/woodchip supplies. These units are owned by citizens in the community and serve as little as 100 households, but create employment and are sustainable in their own right. Similarly, combined energy, food and construction materials production units are also co-developed by local companies representing the different skills and core competences needed. These activities are supported by national and regional research units. It includes animal farms combined with tomato production and fuelled on renewable energies (Biomass, biogas and sun and/or wind energy to heat light up the buildings). As a side product, the plant also produces raw material for biopolymer productions. Initially, it is mainly private investors and EU structural funds that finance such innovation and business development projects. Increasingly also financial institutions become interested in financing these types of ventures.

Key challenges for subsectors:

- *Onsite construction*: Increase productivity/reduce costs, sustainable construction, defining new business models and establishing long term local partnerships;
- *Manufacturing of construction materials*: Challenges with energy supply and access to natural resources are met by efforts to develop and use sustainable energy sources and sustainable alternatives to natural resources at local level, long term local partnerships ensure raw materials and customer relations; growth requires a different business model where production and value chain concepts are transferred to other relevant local communities (where raw/new materials and potential value chains exist);

- *Professional construction services*: Engage in local value partnerships, access to talent, pressure on price margins, rethinking value and service concept to incorporate cradle-to-cradle and sustainable community principles; not just design of constructions, but design of value propositions and value networks.

Implications for policy makers

Policy makers at national and regional level focus on helping construction companies achieve higher levels of productivity through long term local partnerships with different businesses. The aim of such partnerships is to promote sustainability and strategic natural and energy resource independence. At EU level, the policy focus is on supporting initiatives that exploit key enabling technologies to create sustainable process, product and service innovations. By facilitating a wide network of national and regional community development agencies the EU is supporting technology and business model transfer.

Policy priorities

- Increasing productivity of construction sector but in direct cooperation with other sectors through long term community based value networks; initially such network developments are supported through structural funds combined with national and regional funds;
- Sustainable construction is only one of many aspects necessary to create truly sustainable community solutions; policy makers raise awareness of the latest community business models often combining many different business actors working together in long term partnership relations;
- Developing local infrastructures and networks as well as European-wide peer learning groups. In the peer learning groups national associations of local and regional community networks meet and exchange experiences and benchmark data to improve their performances. However, the networks involve a multitude of sectors and not just construction. They are a true reflection of the community networks;
- Creating standards and promoting these standards for small and large scale renewable energy production solutions as well as combination with other business activities.

Implications for proposed governance structure of a European strategy: National, regional and even local policies dominate and participation in EU peer learning group activities is limited and primarily takes place with participation of community and local area network initiatives. Interest in standardisation at European level is also diminishing; however, cradle-to-cradle standards for local energy consumption and production solutions are in demand. The ECTP also succeeds in creating strong links between businesses and academia especially at regional level.

6.6 Governance and implementation plan

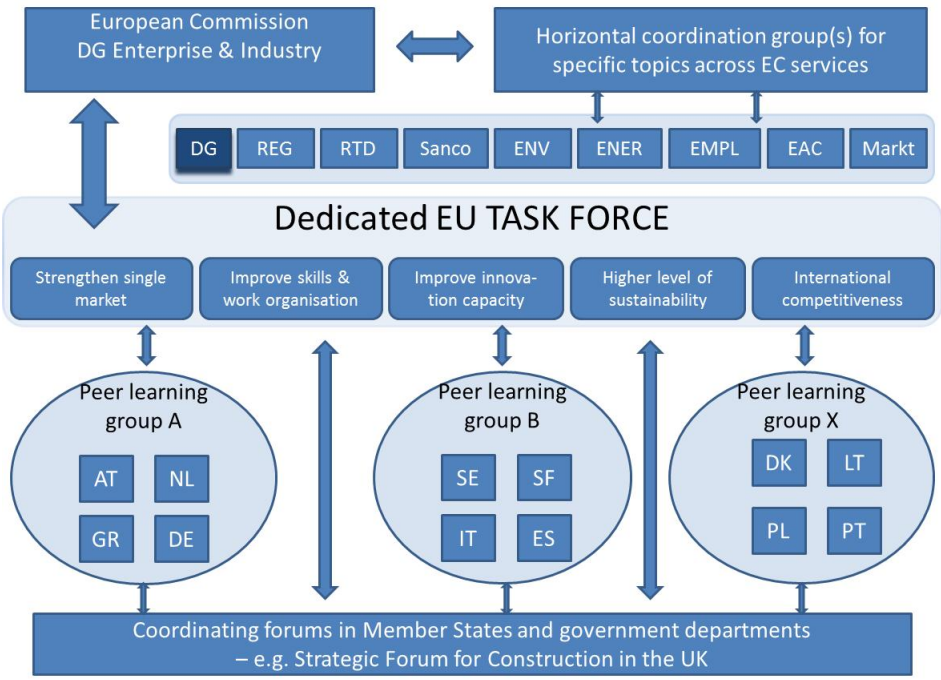
Implementation of the competitiveness agenda for the European Construction sector requires a governance structure that combines horizontal and vertical management, coordination and monitoring.

There is a need for:

1 A dedicated TASK FORCE to coordinate and monitor the construction specific European policy initiatives;
2 A horizontal commission services coordination group to identify synergies and monitor impacts and effects of different commission services' initiatives aimed at and impacting on the construction sector;
3 Creating country peer learning or cluster networks of Member States that share a focus on specific priorities or problems within the strategy.

The governance structure serves the purpose because it allows both for strategic direction from the EU level as well as bottom up initiative from Member States, sector and subsector levels. There is a need for closer cooperation between the subsectors and across the value chains of the construction sector in order to meet the global grand challenges. Therefore, we propose a single Task Force and not one for each of the subsectors. Subsectors and industry can set up additional groups to prepare input for the Task Force, but strategic actions need to take into account implications for the entire value chain.

Figure 6.1: Proposal for governance structure



6.6.1 The establishment of a dedicated TASK FORCE

The purpose of the TASK FORCE will be to coordinate and monitor the implementation of the initiatives including at Member State and sector level. This TASK FORCE will consist of representatives from Member States (identified, selected and appointed by ministries and/or other relevant public organisations) and existing European sector organisations plus relevant academic experts. The key European sector organisations should all be represented at the highest level and should represent the different subsectors of construction including Architects, Engineering, Contractors, Construction product

suppliers and Real estate developers. Also SMEs and employee organisations should be represented.

The legitimacy of the TASK FORCE and its members is vital in order to achieve the objectives of the strategy. Therefore members should be appointed on the basis of relevant competences, experiences, network contacts and leadership capabilities.

The TASK FORCE will operate for the full duration of the implementation plan or until the implementation plan has been replaced or abandoned. The TASK FORCE should meet twice a year to monitor and discuss progress and suggest adjustments to the implementation plan or completely new policy measures or initiatives.

The TASK FORCE should be mandated to:

- Monitor the progress of the sustainable competitiveness agenda for the construction sector;
- Propose new initiatives or adjustments to existing initiatives to improve the sustainable competitiveness of the construction sector;
- Request programme and initiative evaluations or indicator measurements to assess the performance and effects of the agenda and its initiatives;
- Facilitate the contact with and follow up on peer learning networks, existing large scale initiatives and relevant Member State initiatives;
- Propose possibilities for strengthening coordination across commission services in direct liaison with the coordination group across DGs.

The European Commission will provide a secretariat for the TASK FORCE. The secretariat will be responsible for production of discussion papers and background documentation to support decision making. The secretariat will be supported by an ad-hoc experts group that can be contracted to deliver these relevant inputs. It is important that this group has a core team of experts to ensure continuation and knowledge sharing.

Strategy framework - Objectives, policy measures and indicators
The TASK FORCE will commence its work with an agreed and approved communication from the European Commission which will describe a set of five core objectives as well as operational objectives. For each of the operational objectives the implementation plan will outline policy measures and indicators to monitor progress of the strategy. This strategy framework will guide the work of the TASK FORCE and its interaction with the European Commission, industry and Member States. The framework will be dynamic and will be assessed and adjusted by the TASK FORCE on an annual basis in cooperation with the relevant stakeholders. The European Commission, individual Member States, sector organisations and peer learning groups can propose well founded amendments to the strategy framework based on changes in framework conditions (e.g. inefficient policy measures or early achievement of goals). See the strategy framework in section 6.4.

6.6.2 Coordination of policy initiatives across European Commission services

Several key themes of relevance to the sustainable competitiveness of the construction sector cut across European Commission services and require coordination of measures in order to reduce potential duplication of efforts and adverse effects of horizontal measures on the construction sector. Coordination of policy initiatives is likely to contribute to the

acceleration towards achieving sustainable development goals by ensuring that (for instance):

- Skills and qualification development and European Qualification Framework take into account internal market access issues associated with professional certifications;
- Implications of the construction product regulations for future knowledge and R&D development are communicated to the Educational and research level;
- Policy initiatives and measures as far as possible consider economic, environmental, social and energy efficiency priorities;
- Regulations are followed up by supporting and stimulating financial instruments.

A DG coordination group should be established to address these issues as well as general policy coordination in the EC on issues and initiatives affecting the construction sector.

This requires the establishment of a coordination group across Commission services. This group should address possible synergies, overlaps, inefficiencies and other coordination issues linked to the key contributions of construction to the EU 2020 strategy and other relevant EU goals.

There should be a core group of participants in the group. However, as can be seen from the table below different Commission services will lead the different discussions of the group depending on the goal being addressed (Leading DG - marked with Lead in bold – see explanation to table). Apart from the core group of participants the DGs should coordinate internally who will attend the meetings of the group depending on the topic. The group will have a secretariat led by a member of the core group based at DG Enterprise and Industry. This secretariat ensures that meetings and agendas are organised, minutes of meetings are produced and actions are taken. Prior to main task force meetings the secretariat will report on the results of these coordinating activities. The coordination group could meet four times per year. The contractor proposes the following themes to be on the agenda in the first four meetings starting in 2011:

- Contribution of construction to job creation;
- Contribution of construction to energy efficiency;
- Contribution to environmental goals;
- Contribution to international growth.

The coordination group could establish small working groups across most relevant Commission services where the need for closer coordination and joint action is identified. Similarly, Commission services not mentioned in the table below can be drawn in as and when needed.

Table 6.1 Role and importance of DGs in discussions of different contributions of construction to EU goals.

Commission services	Energy efficiency	Social cohesion	Environ-mental goals	Internatio-nal growth	Job creation	Innovation
Environment	XXX	XX	**Lead**	X	XX	XX
Energy	**Lead**	X	XXX	XX	XX	XX
Enterprise	XX	XX	XX	**Lead**	XX	XXX
Education & Culture	X	XX	X	XX	XXX	XX
SANCO	X	XX	X	X	X	XX

Commission services	Energy efficiency	Social cohesion	Environ-mental goals	Internatio-nal growth	Job creation	Innovation
Research	XX	XX	XX	XXX	X	**Lead**
Internal Market	X	X	X	XXX	XX	XX
Trade	XX	XX	X	XXX	XXX	XX
Employment & Social affairs	XX	**Lead**	XX	XXX	**Lead**	XX
Climate Action	XXX		XXX		X	X
Mobility and Transport	XX	XX	XX		X	X
Info soc & Media	XX	XX	XX	XX	XX	XXX
Regional policies	XX	XX	XX	XX	XXX	XXX

Explanation note to table: ***Lead*** *= DG will lead the discussions of this subject, XXX = important participant, XX participants, X = could be participants*

6.6.3 Peer learning and knowledge sharing

Although many of the EU goals are reflected in national strategies in most of the EU Member States, there are differences in focus, priority, stage and level of development from country to country and subsector to subsector. Therefore, it is likely that Member States will be interested in seeking active cooperation with other Member States where they have the opportunity to learn from experiences in these countries and vice versa. Some Member States will have a greater focus on certain objectives in the communication than others and will want to exchange ideas and experiences with likeminded Member States. The establishment of peer learning groups can built on several existing groups. URBACT is a European exchange and learning programme promoting sustainable urban development and includes several relevant learning groups. Many countries have established Green Building councils which could benefit from cross Member States collaborations. INTERACT is another relevant cross national forum. Similarly a number of countries have established national construction technology platforms linked to the European Construction Technology Platform (ECTP), however the cooperation between these national construction technology platforms could be enhanced through peer learning activities across common research themes within construction technologies.

Member States should be encouraged to propose and initiate peer learning networks and activities between Member States relating to the solving of specific challenges faced by the construction sector. Such peer learning networks could be established on the initiative of one or more Member States and could take place at government level, sector/subsector, organisational/social partner level, and/or at cross organisation levels in order to benchmark and learn from initiatives and experiences in other countries.

The objective of the peer learning groups is to improve the performance of the construction sector (e.g. increased productivity and contribution to social cohesion, environmental, energy efficiency and/or international competition goals). While working together on improving the performance of the construction sector, the peer learning group

may come across inefficiencies at EU level and may propose changes to regulations or other initiatives to be considered in the Task force and the European Commission.

The peer learning groups will conduct the following key activities:

- Peer learning based on benchmark data, presentation and discussion of approaches to regulation, support initiatives and other instruments (for instance benchmarking PPP results or waste management in construction);
- Knowledge sharing concerning effects of initiatives and regulations (for instance in relation to education and training funds, uptake of existing technologies and R&D results);
- Peer cooperation to exploit opportunities for synergies (for instance within research activities, examination and testing of certification systems and standards);
- Peer cooperation to improve cross-border trade and mobility (for instance in relation to construction products, common definitions of qualifications and mobility of workers).

Peer learning groups will be supported by a competent coordinator. The cost of the coordinator will be covered by the Commission. The coordinator will organise the meetings/visits of the peer learning group and will report on findings and results to the group and the TASK FORCE. Individual Member States will contribute to the agenda and agreed input to the process. Themes and subjects are identified by the individual members, but can also be initiated by the TASK FORCE.

Apart from providing a coordinator, the role of the European Commission will be to support the peer learning groups with relevant information and knowledge and consult the peer learning groups when information and feedback is required to inform policy development at EU level.

6.6.4 Consultation mechanisms

Consultations on possible new initiatives and impacts of existing initiatives should be carried out by the TASK FORCE as well as by the horizontal coordination group at the European Commission to ensure that policies and initiatives are meeting needs and addressing deficiencies at EU and Member State level.

These consultations will be an important measure in minimizing adverse effects on the sustainable competitiveness of the construction sector as well as identifying necessary improvements and adjustments to regulations and initiatives. Equally the consultations will contribute to the identification of good practices in addressing key issues and problems.

Consultation mechanisms are an obvious opportunity for peer learning groups and Member States to raise problems concerning both horizontal and vertical framework conditions, but also to identify what seems to work and what other factors have a negative impact on the sustainable competitiveness of the construction sector. For example in terms of addressing the financial crisis what measures worked and what did not work so well in tackling the huge drop in construction activities due to the financial crisis.

6.6.5 Implementation measures

Capacity building measures; supporting Member States in the implementation of the strategy:

Establishment of strategic forum at MS level

The TASK FORCE and the EU should encourage Member States to establish a strategic forum consisting of sector, subsector, government and client representatives such as several Member States have already done (e.g. Strategic Forum for Construction in the UK). A strategic forum in each Member State would improve the commitment and capacity building of the different actors and would provide a more united voice in contacts with the European Commission and similar fora in other Member States.

Road maps

The TASK FORCE can develop road maps for implementing the different parts of the strategy. Depending on the state of construction and developments in specific areas Member States and the national strategic forum may introduce shorter or longer road maps for implementing the different elements of the strategy.

Good practices

The secretariat of the TASK FORCE will collect implementation good practices relating to different elements of the strategy from Member States and will produce syntheses of these good practices, which will be approved by the TASK FORCE and circulated among relevant implementing institutions at Member State level. Furthermore, the secretariat will help create contact between institutions in different Member States that may benefit from direct exchange of experiences. Good practices could relate to:

- Surveillance of compliance with EU legislation and regulations; and
- Improving uptake of existing technologies in the construction sector.

Annual review of national and EU implementation

The implementation plan details a set of objectives organised by five overall objectives to achieve the sustainable competitiveness of the construction sector. For each of the objectives, a range of indicators have been identified to allow continuous measurement of progress. It is proposed that an annual review is conducted where data is collected for each of the indicators and where possible for all Member States. The analysis of progress achieved will be presented in an annual review report. The analysis will further identify areas for special renewed focus in the coming period. Findings and results achieved at Member State level and in peer learning groups will also be reported to show how results have been achieved.

Annual conference with status for implementation

The TASK FORCE will organise with the European Commission an annual conference where the results of the annual review report, good practices and peer learning results are discussed in several parallel strands.

The discussion at the conference and the resulting conference report will inform the work of the TASK FORCE for the following period and will identify relevant themes to be discussed in the coordinating group across Commission services. Equally, possible new

peer learning groups can be formed and existing peer learning groups can get new members or new subjects to cooperate or peer learn.

6.6.6 Risk factors concerning the governance structure

The success of the governance structure builds on voluntary action from all stakeholders apart from an ad-hoc group of experts. It is important therefore to legitimate the TASK FORCE to conduct a critical appraisal of sector, subsector and Member State performance in relation to the objectives set in the strategy,

The governance structure requires means and resources in order to support the implementation of the strategy, facilitate the interaction between the subsequent parts and levels of the structure and ensure that objectives are acted upon at the different levels. Without these means and resources the strategy will be discussed and agreed upon but not implemented, monitored and adjusted.

The buy in and commitment at Member State level is essential in order to achieve the stated objectives. This commitment will depend on a strong fit with the national agenda for construction and the existence of an organisation at Member State level that can coordinate the interaction and exchanges with TASK FORCE and peer learning groups.

The transfer and implementation of learning points and good practices from reports and peer learning activities into actual changed behaviour in construction is in the end up to regulators, businesses and employees. The national sector organisations, the social partners and government officials therefore require the best possible support in bringing these changes to effect.

6.7 Monitoring framework

For each of the objectives a number of indicators have been defined. (See the policy measures for possible indicators to be used). These indicators will be used to monitor results and progress towards the policy goals.

The current state of developments and the likely trajectory of future developments will vary from country to country and when monitoring progress it will be important to set targets that are realistic for the individual countries taking into account the stage they are at when the strategy is implemented.

An outline roadmap has also been developed for each of the objectives suggesting when progress should be monitored during the first five years.

Annex I: Bibliography

ACE (2010), Impact of the economic crisis, opinion poll results. Available at: http://www.ace-cae.org/public/contents/index/category_id/220

ACE (2008), The architectural profession in Europe - a sector study commissioned by the Architects' Council of Europe. West Sussex: Mirza and Nacey Research.

Anderson, Johan (1998), Prediction of noise from railway bridges. Available at: http://www.sbi.se/uploaded/litteratur/Rapp%20210,1%20Hela%20rapporten.pdf

APWA (2001), Quality assurance during construction. Available at: http://www.apwa.net/documents/resourcecenter/qc-qa_examples.pdf

Australian Industry Group (2008), State of play, The Australian construction industry in 2008. Available at: http://www.constructors.com.au/publications/isop_nov_2008/State%20of%20Play%20in%20the%20Australian%20Construction%20Industry%20-%20November%202008.pdf

Australian Sustainable Built Environment Council (2008), The second plank – building a low carbon economy with energy efficient buildings.Available at: http://www.cibworld.nl/app/export/pcZhdJMx/20101488/0e925a054edaf5a2a29240f7fd8fa8d2/ASBEC%20CCTG%20Second%20Plank%20Report%202.0_0.pdf

Badescu, Mircea (2006), Measuring the outputs and outcomes of vocational training – towards a coherent framework for indicators, European Commission Joint Research Centre. Available at: http://www.agro-net.eu/attachments/116_EUR_22305_Measuring-Outputs-Outcomes-Vocational-Training.pdf

Berger, Roland (2004), Success factors in the construction industry in 2004. Available at http://www.rolandberger.com/media/pdf/rb_press/RB_Success_factors_20040804_E.pdf

BDO (2009), China, opportunities and barriers to inbound construction. Available at: http://bdo.scripthandler.com/g20/pdfs/China.pdf

Berger, Roland (2009), Auswirchnungen der aktuellen Wirtschaftskrise-Chancen Risiken und Massnahmen. Available at: http://www.rolandberger.com/media/pdf/Roland_Berger_Studie_Baustoffindustrie_20090331.pdf

Bernard Williams Associates (2006), Benchmarking of use of construction (costs) resources in the Member States (pilot study), Final report. Available at: http://ec.europa.eu/enterprise/sectors/construction/files/compet/benchmarch_activities/finalreport_en.pdf

Bicchini, Fabio et al (2002), A new index of production for the construction sector based on input data, Departimento delle Statistiche Economica, Instituto Nazionale di statistica. Available at: http://www.oecd.org/dataoecd/21/49/30036154.pdf

BNP Paribas Real Estate (2009), Houseview, outlook for Europe, December 2009 – employment and production in construction

BNP Paribas Real Estate (2009), Property report, office market in Europe, Q3 2009 – take up in major European cities
Boston Consulting Group (2008), Assessment of the impact of the 2013-2020 ETS proposal on the European cement industry. Executive summary available at: http://www.oficemen.com/show_doc.asp?id_doc=9
Boverket (2008), Sustainability by Sweden – perspectives on urban governance. Available at: http://www.cibworld.nl/app/export/SmMjPAxx/20102830/fe03cb2376fd20505d8bbdc04bcdeb45/Sweden_WUF.pdf
Broekhuizen, Fleur & Pieter van Broekhuizen (2009), Nano-products in the European construction industry - state of the art 2009. Produced in collaboration with FIEC, EFBWW and IVAM with EC support. Available at: http://hesa.etui-rehs.org/uk/newsevents/files/Nano_Executive_%20summary.pdf
Building America (2004), Moving toward zero energy homes, US Department of Energy. Available at: http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/36944.pdf
Bundesvereingung Bauwirtschaft (2009), "Politische Forderungen der Deutchen Bauwirtschaft". Available at: http://www.zdb.de/zdb.nsf/97C3ABD31B6FB1FBC1257591004D8AE7/$File/Politische%20Forderungen%202009.pdf
CANMET (2004), Emerging energy-saving technologies and practices for the buildings sector. Available at: http://www.cibworld.nl/app/export/SmMjPAxx/20104507/27bea49b21f52ebb49dac47c593003fd/8_BuildingsEmergingTechnologyReportwTables.pdf
CEBC (2007), Access for all in Europe, BCR – Building Control Report, Issue 1. Available at: http://cebc.eu/images/stories/documents/reports/access_for_all_-_cebc_final_-_june_2008.pdf
CEBC (2006), Building control systems in Europe, BCR – Building Control Report, Issue 2. Available at: http://sabsm.co.uk/sabsm/cebc/Building%20Control%20Systems%20in%20Europe.pdf
CEN (2010), Construction snapshot - current situation for candidate harmonized standards under the Construction Products Directive, Available at: ftp://ftp.cen.eu/CEN/Sectors/List/Construction/Snapshot.pdf
Cillinan, Trevor et al (2007), A sharp construction sector retrenchment would hit Ireland and Spain hard, Standard and Poor´s. Available at http://www.eleconomista.es/imag/_v2/documentos/construction_sector_s&p.pdf
CIOB (2008), Managing the risk of delayed completion in the 21st Century. Available at: http://www.ciob.org.uk/filegrab/TM_report_full_web.pdf?ref=880
CIOB (2008), Skills shortages in the UK construction industry. Avaliable at: http://www.ciob.org.uk/filegrab/1SkillsReport2008_Web2.pdf?ref=851
CIOB (2007), The green perspective, a UK construction industry report on sustainability. Available at: www.ciob.org.uk/filegrab/TheGreenPerspective.pdf?ref=539
CITB (2003), Construction skills forecast - report 2003. Available at: http://www.guidance-research.org/future-trends/construction/links/citb-pub/
Committee on Advancing the Competitiveness and Productivity of the U.S. Construction Industry, National Research Council (2009), Advancing the competitiveness and

efficiency of the U.S. construction industry. Available at: http://cart.nap.edu/cart/deliver.cgi?&record_id=12717&free=1
Constructing Excellence (2009), Never waste a good crisis - a review of progress since rethinking construction and thoughts for our future. Available at: http://www.cibworld.nl/app/export/uevGFUpJ/20103327/055ae425f612de8724c6e9802870b9d7/Wolstenholme_Report_Oct_2009.pdf
Constructing Excellence (2009), Seeing the future - the use of visualisation in construction. Available at: http://www.constructingexcellence.org.uk/pdf/innovation/vrpaper.pdf
Construction Industry Council (2010), The impact of the recession on construction professional services. Available at: http://www.cic.org.uk/newsevents/ImpactRecessionProfessionals-EconomicPerspective.pdf
Construction Products Association & Strategic Forum for Construction (2005), Improving construction logistics - report of the Strategic Forum for Construction Logistics Group. Available at: http://www.strategicforum.org.uk/pdf/Logistics%20Report%20August%202005.pdf
Construction Products Association (2010), Construction industry facing another bleak year (press release). Available at: http://www.constructionproducts.org.uk/newsdesk/dbfiles/Construction%20Industry%20Facing%20Another%20Bleak%20Year%20-%20January%202010.pdf
Corus (2004), Insite on Life Cycle Costs, Available at: http://www.colorcoat-online.com/file_source/StaticFiles/Colorcoat%20Online/pdf/insite_life_cycle.pdf
CTBUH Technical Papers. Available at: http://www.ctbuh.org/Publications/TechnicalPapers/tabid/71/language/en-GB/Default.aspx
Danish Technological Institute (2009), "Fagglidning og samarbejde på byggepladsen - undersøgelse af forekomsterne af fagglidning og tværfagligt samarbejde på danske byggepladser", Authors: Annemarie Holsbo & Josina Moltesen. Taastrup, Denmark: Danish Technological Institute.
Davis Langdon (2009), Construction industry market report 2009, second quarter update. Available at: http://www.davislangdon.com/upload/images/publications/USA/2009%202nd%20Qtr%20Construction%20Industry%20Market%20Report.pdf
Davis Langdon (2008), World construction 2007-2008. Available at: http://www.davislangdon.com/upload/StaticFiles/EME%20Publications/Other%20Research%20Publications/WorldConstruction07_08.pdf
Deloitte (2009), China real estate investment handbook – the details that make a difference, 2009 edition
Deloitte LLP (2009), Securing the foundations, European powers of construction 2009.
Department for Communities and Local Government (2006): Building a greener future: towards zero carbon development. Available at: http://www.communities.gov.uk/documents/planningandbuilding/pdf/building-greener.pdf
Deutsche Bank Research (2010), Green buildings - a niche becomes mainstream. Available at:

http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD0000000000256216.pdf
Deutsche Bank Research (2009), Spain's real estate and construction markets, October 2009. Available at: http://www.dbresearch.com/PROD/DBR_INTERNET_DE-PROD/PROD0000000000249453.pdf
Deutsche Bank Research (2008), Building a cleaner planet – the construction industry will benefit from the climate change, November 2008.
DG Enterprise and Industry (2010), EU manufacturing industry: what are the challenges and opportunities for the coming years? First tentative findings of a sector-specific analysis carried out in DG Enterprise and Industry 26th April 2010 (draft document)
DG Enterprise and Industry Joint Research Centre (2008), The Eurocodes: increasing competitiveness (Leaflet). Brussels: European Commission.
DG Enterprise and Industry Joint Research Centre (2008), The Eurocodes: supporting EU policies & increasing competitiveness.
Die Deutche Bauenindustrie (2008), "Wichtige Baudata/2008". Available at: http://www.bauindustrie.de/dyndata/article_00150/Baudatenkarten_2008.pdf
E-Business watch (2006), ICT and e-business in the construction industry. Available at: http://www.ebusiness-watch.org/studies/sectors/construction/documents/Construction_2006.pdf
E-Business watch (2005), Case study: Skanska (Sweden). Available at: http://www.ebusiness-watch.org/studies/case_studies/documents/Case%20Studies%202005/CS_SR08_Construction_4-Skanska.pdf
EANBMA (2009), UFEMAT Presentation: Distribution to the European supply chains – the professional market. Marnix Van Hoe, Secretary General, May 2009
Ecorys (2010), Sector Councils on Employment and Skills at EU level. A study into their feasibility and potential impact. Executive summary available at: http://ec.europa.eu/social/BlobServlet?docId=4765&langId=en
EeB PPP (2009), Research priorities for the definition of a multi-annual roadmap and longer term strategy. Available at: http://www.e2b-ei.eu/documents/EeB%20PPP%20Multiannual%20Roadmap%2018%20jan%202010%20last.pdf
EFBWW-FIEC (2009), The economic crisis and the consequences for the European construction industry, positive measures and EFBWW concerns. Brussels, 11 May 2009.
EFCA (2009), A vision of the European consulting future (2020). Draft presentation.
EFG (2004), Current issues relating to the professional practice of engineering geology in Europe, May 2004. Available at: http://www.eurogeologists.eu/images/content/panels_of_experts/engineering_geology_in_europe/Liege_Keynote_paper.pdf
ENCORD (2009), ENCORD position & strategy paper. Available at: http://encord.org/ENCORD-Strategy-Paper-Jan-2009.pdf
ENR (2008), Top 225 international contractors 2008. Available at: http://enr.construction.com/people/topLists/topIntlCont/topIntlCont_1-50.asp
ENR (2010), Top 225 international contractors 2010. Available at: http://enr.construction.com/toplists/InternationalContractors/001-100.asp

Enterprise Ireland (2010), Leadership 4 growth. Available at: http://www.enterprise-ireland.com/en/Management/Leadership-and-Management-Development/Leadership4Growth-Brochure-2010.pdf

EPA (1998), The action plan for energy star building success. Available at: http://www.wbdg.org/ccb/STAR/esbm_2.pdf

EurActiv (2010), Raw materials: heading for a global resource crunch?, 18 January 2010. Available at: http://www.euractiv.com/en/sustainability/raw-materials-heading-a-global-resource-crunch-linksdossier-188526

European Central Bank (2010), Survey of the SMEs access to finance in the Euro area: March-September 2010. 22nd October 2010. Available at: http://www.ecb.int/pub/pdf/other/accesstofinancesmallmediumsizedenterprises201010en.pdf

European Commission (2010a), Impact of the economic crisis on key sectors of the EU - the case of the manufacturing and construction industries, a Commission services document, 6th January 2010.

European Commission (2010b), Critical raw materials for the EU: Report of the Ad-hoc Working Group on defining critical raw materials. Available at: http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/report-b_en.pdf

European Commission (2010c), An integrated industrial policy for the globalisation era putting competitiveness and sustainability at centre stage, COM(2010) 614. Available at: http://ec.europa.eu/enterprise/policies/industrial-competitiveness/industrial-policy/files/communication_on_industrial_policy_en.pdf

European Commission (2010d), New skills for new jobs: action now. Available at: http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=697&furtherNews=yes

European Commission (2009a), Lead market initiative for Europe mid-term progress report. Commission staff working document. Available at: http://ec.europa.eu/enterprise/policies/innovation/files/swd_lmi_midterm_progress.pdf

European Commission (2009b), A shared commitment for employment. Available at: http://ec.europa.eu/social/BlobServlet?docId=2798&langId=en

European Commission (2008a), FWC sector competitiveness studies - competitiveness of the ceramics sector.

European Commission (2008b), FWC sector competitiveness studies - competitiveness of the glass sector. Available at: http://ec.europa.eu/enterprise/newsroom/cf/document.cfm?action=display&doc_id=4044&userservice_id=1

European Commission (2008c), Making the internal market for construction products a reality, Press release, MEMO/08/342, Brussels, 26th May 2008. Available at: http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/342&format=HTML&aged=0&language=EN&guiLanguage=en

European Commission (2008d), Think small first - a small business act for Europe, Brussels, 25.6.2008, COM(2008) 394 final. Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0394:FIN:en:PDF

European Commission (2006), Commission decision of 4 August 2006 drawing up the list of Member States eligible for funding from the Cohesion Fund for the period 2007-2013. (2006/596/EC). Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:243:0047:0048:EN:PDF

European Commission (1997), The competitiveness of the construction industry, Commission Communication COM (97) 539. Available: http://www.etn-presco.net/library/SustConst_EC-TaskGroup.pdf

European Commission Enterprise and Industry (2010), Monthly note on economic recovery in manufacturing, construction and services industries (multiple papers). April 2010 paper available at: http://ec.europa.eu/enterprise/newsroom/cf/document.cfm?action=display&doc_id=5763&userservice_id=1

European Construction Technology Platform (2005), Strategic research agenda for the European construction sector - achieving a sustainable and competitive construction sector by 2030. Available at: http://www.ectp.org/documentation/ECTP-SRA-2005_12_23.pdf

European Convention for Constructional Steelwork (2008), Statistical bulletin for the production in 2008. Available at: http://www.steelconstruct.com/eccs/annual/2009Statistic.pdf

European e-Business Market watch (2005), Case study: Termonica Ltd (Poland). Available at: http://www.ebusiness-watch.org/studies/case_studies/documents/Case%20Studies%202005/CS_SR08_Construction_5-Termonica.pdf

European Foundation for the Improvement of Living and Working Conditions (2005), Trends and drivers of change in the European construction sector: mapping report. Available at: http://www.eurofound.europa.eu/emcc/publications/2005/ef04149en.pdf

European international contractors (2008), International expansion, by Chris Sleigh, published in International-European construction. Available at: http://www.eicontractors.de/media/uploads/attachment/eic_document_fc_0047.pdf

European Monitoring centre on change (2005), Trends and drivers of change in the European construction sector: mapping report. Available at: http://www.eurofound.europa.eu/emcc/publications/2005/ef04149en.pdf

European Monitoring centre on change (2005), Trends and drivers of change in the European construction sector: four scenarios. Available at: http://www.eurofound.europa.eu/emcc/publications/2005/ef0566en.pdf

European Parliament (2009), Impact of the financial and economic crisis on European industries, Compilation of briefing papers, Policy department Economic and scientific policy, March 2009.

European Parliament (2006), Public-Private Partnerships - models and trends in the European Union. Available at: http://www.europarl.europa.eu/comparl/imco/studies/0602_ppp_briefingnote_en.pdf

FEMA (2005), Conduits through embankment dams. Available at: http://www.damsafety.org/media/Documents/PDF/fema-L266.pdf

Federal Highway Administration (2000), Materials and methods for corrosion control of reinforced and prestressed concrete structures in new construction. Available at: http://www.tfhrc.gov/structur/00-081.pdf

FIEC (2010), Naïve procurement, Construction Europe, March 2010.
FIEC (2009), Construction activity in Europe 2009, Brussels: FIEC
FIEC (2009), Construction activity in Europe – key figures/activity 2009, Brussels: FIEC
FIEC (2009), Annual report 2009, Brussels: FIEC
FIEC & EIC (2009), FIEC/EIC statement on corruption prevention in the construction industry. Available at: http://www.eicontractors.de/doc/pp/eic_document_pp_0041.pdf
FIEC & EFBWW (2009), Self-employment and bogus self-employment in the European construction industry. Part 1: A comparative study of 11 Member States. Funded by DG Employment EC
FIEC & EFBWW (2009), Self-employment and bogus self-employment in the European construction industry. Part 2: Abstracts of 11 country reports. Funded by DG Employment EC
Fordham, Peter (2009), Cost update, Davis Langdon. Available at: http://www.davislangdon.com/upload/StaticFiles/EME%20Publications/CostUpdates/CostUpdate_Sep09.pdf
Girmscheid & Scheublin (ed.) (2010), New perspective in the industrialisation of construction – A state-of-the-art report, IBB – Institut für Bauplanung und Baubetrieb, Zürich: Eigenverlag des IBB an der ETH Zürich. Available at: http://cibworld.xs4all.nl/dl/publications/tg57_pub329.pdf
Glass for Europe (2009), Low-E insulating glass for energy efficient buildings. Available at: http://www.glassforeurope.com/images/cont/117_57609_file.pdf
Glass for Europe (2009). Solar control glass for greater energy efficiency. Available at: http://www.pilkington.com/resources/gepvpsolarcontrolglassbrochureco2.pdf
Global Construction Perspectives and Oxford Economics (2009), Global construction 2020: a global forecast for the construction industry over the next decade to 2020. Available at: http://www.joinricsineurope.eu/uploads/files/RICSGlobalConstructionForecast2020.pdf
Goodier, Chris & Simon Austin et al. (2008), Anticipating tomorrow – the future of the European construction industry, Loughborough: European Construction Institute Available at: http://www.cibworld.nl/app/export/uevGFUpJ/20102840/65bd48853b12e6e0846d1a430397f2e9/ECI_Industry_Futures.pdf
Gulvanessian, H. et al. (2007), Training and promotion of the Eurocodes, DG Enterprise and Industry Joint Research Centre. Available at: http://eurocodes.jrc.ec.europa.eu/doc/EUR22857EN
Gutiérres et al. (2007), Purpose and justification for new design standards regarding the use of fibre-reinforced polymer composites in civil engineering. DG Enterprise and Industry Joint Research Centre. Available at: http://eurocodes.jrc.ec.europa.eu/doc/EUR22864EN
Häkkinen, Tarja, Pekka Huovila & Kai Tattari (2006), Eco-efficient building process. Available at: http://virtual.vtt.fi/virtual/proj6/environ/sb02-eco-efficient%20b_process2.pdf
Haley, Usha C.V. (2009), Through China's looking glass – subsidies to the Chinese glass industry from 2004-08, Washington D.C.: Economic Policy Institute
Hampson, Keith & Peter Brandon (2004), Construction 2020 – a vision for Australia's property and construction industry. Available at:

http://www.cibworld.nl/app/export/pcZhdJMx/20101488/0e925a054edaf5a2a29240f7fd8fa8d2/ASBEC%20CCTG%20Second%20Plank%20Report%202.0_0.pdf
Home Builders Federation (2010), Let's start at home – manifesto 2010. Available at: http://www.hbf.co.uk/fileadmin/documents/Email_Links/HBF_FULL_DETAILED_2010_Housing_Manifesto.pdf
ICLEI (2008), Construction – background product report. Toolkit developed for the European Commission. Local governments for sustainability 2008. Available at: http://ec.europa.eu/environment/gpp/pdf/toolkit/construction_GPP_background_report.pdf
IKB aktuell (2009), "Deutches Baugewerbe: Erholung ab 2010". Available at: http://www.ikb.de/content/de/branchen_und_maerkte/Aktuelle_Publikationen/ikbhb0909_Baugewerbe.pdf
IKB Information (2009), "Bauindustrie 2020 Stein auf Stein: Der konsoliderungsprozess wird bald fertig sein". Available at: http://www.ikb.de/content/de/branchen_und_maerkte/Groessere_Maerkte/Bauindustrie2020.pdf
Jewell, Carol; Roger Flanagan & Caner Anaç (2010), Understanding UK construction professional services exports: definitions and characteristics, Construction Management and Economics (March 2010) 28, 231–239.
Joined Research Centre (2010), The EN Eurocodes. European Commission Joined Research Centre Website. Available at: http://eurocodes.jrc.ec.europa.eu/
Klingenberg (2006), Better buildings through energy efficiency – a roadmap for Europe, Produced for EURIMA and available at: http://www.eurima.org/uploads/ModuleXtender/Documents/89/documents/EU_Roadmap_building_report_020307.pdf
Kok, Nils; Piet Eichholtz, Rob Bauer & Paulo Peneda (2010), Environmental performance – a global perspective on commercial real estate. Mastricht University: The European Centre for Corporate engagement, Netherlands. Available at: http://nilskok.typepad.com/PDFonderzoeken/ECCE_Report_Environmental_Real_Estate_Survey.pdf
KPMG & Econtech (2009), Economic analysis of building and construction industry productivity: 2009 report. Available at: http://www.cibworld.nl/app/export/pcZhdJMx/20102410/ba947b45b3ad9c28280e103ffa185c2d/ReportKPMGEcontech.pdf
KPMG International (2010), Global construction survey 2010 – adapting to an uncertain environment. Available at: http://www.kpmg.com/DK/da/nyheder-og-indsigt/nyhedsbreve-og-publikationer/publikationer/brancher/ejendom-enterprise/Documents/adapting-to-an-uncertain-enviroment.pdf
KPMG International (2009), Navigating the storm – charting a path to recovery, Global construction survey 2009, November 2009, Publication number: RRD 167844. Available at: http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Documents/Global-construction-survey-2009.pdf
KPMG International (2008), Embracing change – global construction survey 2008, May 2008, Publication number: 313-378
KWT Bau (2004), "Arbeitsgemeinschaft kreislaufwirtschaftstrager bau". Available at: http://www.recyclingbaustoffe.de/pdf/Monitoring-Bericht-KWTB_5.pdf

Larsen, Jacob Norvig (2008), Collaborative working in the field of construction services in Denmark, university of Aalborg. Available at: http://vbn.aau.dk/fbspretrieve/16542905/Collaborative.pdf

Lützkendorf, Thomas (2009), "Nachhaltiges Bauen – auf dem Weg zum Leitmarkt". In: "Brennpunkt CO_2 Reduktion – Chancen für das Bauwesen". Stuttgart, Germany.

Male, Steven & Dragana Mitrovic (2005), The project value chain: models for procuring supply chains in construction, in Sidwell, A. C. (ed.) (2005), QUT Research Week 2005, Conference Proceedings. Australia: RICS Research, AUBEA & CIB.

Manchester Business School (2009), Study on voluntary arrangements for collaborative working in the field of construction services. Available at: http://www.mbs.ac.uk/research/innovation/documents/FinalReportPart1Web.pdf

Manchester Business School (2006), Analysis and assessment of the elements of certain Community policies that impact on the competitiveness of the construction sector, Final report.

McKinsey & Company (2009), Pathways to world-class energy efficiency in Belgium. Summary available at: http://www.mckinsey.com/clientservice/ccsi/pdf/energy_efficiency_belgium_summary.pdf

McKinsey & Company (2009), Assessment of greenhouse gas emissions abatement potential in Poland by 2030. Summary available at: http://www.mckinsey.it/storage/first/uploadfile/attach/141676/file/greenhouse_gas_emissions_abatement_potential_poland.pdf

Meikle, James L. & Maurizio Grili (2002), Measuring European construction output: problems and possible solutions. United Kingdom: Davis Langdon Consultancy.

Miller, Wikki (2007), High price of zero-carbon.building.co.uk (March 27, 2007). F+G. Available at: http://www.building.co.uk/news/high-price-of-zero-carbon/3083723.article

Morris, Peter (2009), 2009 market update – a guide to working in a recession, Davis Langdon. Available at: http://www.davislangdon.com/upload/images/publications/USA/2009%20Market%20Update.pdf

National Platform for the Built Environment (2008), Knowledge-based, value-driven industry – a scoping-study of the research agenda relative to the issues facing the built-environment construction industry in 2020. Available at: http://www.cibworld.nl/app/export/SmMjPAxx/20102860/e91f1b251281cfb694942fa4c1c5a483/UK_CE_Industry.pdf

National Research Council of the National Academies (2008), Advancing the competitiveness and efficiency of the U.S. construction industry. Available at: http://www.cibworld.nl/app/export/uevGFUpJ/20102925/484d9a68f270bdc2c18c01fb6ffb45b2/12717.pdf

National Science and Technology Council (2008), Federal research and development agenda – net-zero energy, high-performance green buildings. Available at: http://www.cibworld.nl/app/export/uevGFUpJ/20102935/dd6de0ecfab520fe1f01753c4e356884/USA_NSTC_Energy_Green.pdf

No1construction (2009). Available at: http://www.no1construction.com/

ObservatoryNano (2009), Economical assessment/construction sector. Available at: http://www.observatorynano.eu/project/filesystem/files/ObservatoryNANO_Economic%20assessment_construction_final%20report.pdf
Office for National Statistics (2008), The construction statistics annual. Available at: http://www.statistics.gov.uk/downloads/theme_commerce/CSA_2008_final.pdf
OFT, 2009, Information note to procuring entities in the public and private sectors regarding the OFT's decision on bid rigging in the construction industry, 22 September 2009. Available at: http://www.oft.gov.uk/shared_oft/business_leaflets/general/Information-Note2.pdf
Paul Baker et al (2008), Study on industrial policy, ECORYS
Plischke, Christiane (2009), "Byggeri og anlæg", Danmarks Eksportråd. Available at: http://www.eksporttiltyskland.um.dk/da/menu/Eksportraadgivning/Markedsmulighedeer/Sektoranalyser/ByggeriOgAnlaeg/ByggeriOgAnlaeg.htm
Politiken (2010), "DI: Kina prisdumper Europa", Politiken, 14 April 2010.
PriceWaterhouseCoopers (2010),
PriceWaterhouseCoopers (2009a), Engineering growth – third quarter 2009 engineering and construction mergers and acquisitions analysis.
PriceWaterhouseCoopers (2009b), Collection of statistical information on green public procurement in the EU, report on data collection results, PriceWaterhouseCoopers, Significant and ECOFYS, January 2009. Available at: http://ec.europa.eu/environment/gpp/pdf/statistical_information.pdf
Public Works and Government Services Canada (2008), Sustainable development strategy 2007-2009. Available at: http://www.cibworld.nl/app/export/SmMjPAxx/20104487/bbe3603866dbfe45a49ea4a356bd42de/9_sdd-sds-2007-eng.pdf
Real Estate Advisory Group Germany (2009), The view of an independent consultant: development of the European real estate sector. Available at: http://www.eib.org/attachments/general/events/reag.pdf
RICS (2010), Improvement in mood amongst Euro area builders. RICS Global Real Estate Weekly, 16 April 2010.
Available at:
http://www.joinricsineurope.eu/uploads/files/GlobalRealEstateWeekly16April.pdf
Rydin & Moore (2009), Sustainable construction and policy learning in Europe in Cooper & Symes (eds.), Sustainable urban development, vol.4 – changing professional practice. Routledge, UK.
Sawczuk, Basil (2009), Marketing and selling professional services in architecture and construction. John Wiley and Sons. Available at: http://books.google.dk/books?id=mqz6-yaAd6QC&printsec=frontcover&dq=Marketing+and+Selling+Professional+Services+in+Architecture+and+Construction&source=bl&ots=8Yaaew7jH8&sig=WP5kP7QW8P92ZUY2_syzJjmjUhA&hl=da&ei=miXYS4nMHKGfOL_RjOEG&sa=X&oi=book_result&ct=result&resnum=2&ved=0CB0Q6AEwAQ
Schartinger, Doris (2009), Sectoral innovation foresight construction, Austria: Europe Innova. Available at: http://www.cibworld.nl/app/export/SmMjPAxx/20105136/57acaf36d9ae489a2afd9dce6af1c5f7/05%20-%20SIW%20Foresight%20Construction.pdf
Spanish News (2010), Over 3,000 file for bankruptcy in Spain in first half of 2009. Available at:

http://www.spanishnews.es/20090806-over-3000-file-for-bankruptcy-in-spain-in-first-half-of-2009/id=686/#comments
Statistiche Amter des Bundes und der Lander (2008), "Internationale Bildungsindikatoren im landervergleich". Available at: https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1024524
StratCon (2007), Strategic roadmaps and implementation actions for ICT in construction, Available at: http://www.cibworld.nl/app/export/SmMjPAxx/20102632/50fa33dee405cbdbb19018ea0aad803d/EU_Stratcon_ICT.pdf
Strategic Forum for Construction (2006), 2012 construction commitments. Available at: http://www.strategicforum.org.uk/pdf/2012ConCom.pdf
ter Welle, R. (2005), Market dynamics in the European road construction sector – An International Study.
The Swedish Association of Architects and Consulting Engineers (2009), The sector review 2009. Available at: http://www.std.se/MediaBinaryLoader.axd?MediaArchive_FileID=3cc1d6c7-b31f-40d4-b55d-0a01bbd7a55d&MediaArchive_ForceDownload=true
UK Construction Group (2009), Construction in the UK economy – the benefits of investment. Available at: http://www.cbi.org.uk/ndbs/press.nsf/0363c1f07c6ca12a8025671c00381cc7/1b0460221653edd28025765c005a5db8/$FILE/UKCG%20L.E.K%20report%2028.10.09.pdf
UK Government Office for Science (2008), Powering our lives: sustainable energy management and the built environment. Available at: http://www.cibworld.nl/app/export/uevGFUpJ/20106219/891fadbb0a13aa4474b4856fd57605ce/Foresight%20-%20Powering%20our%20lives.pdf
UNEP (2008), Buildings and climate change – status, challenges and opportunities. Available at: http://www.cibworld.nl/app/export/uevGFUpJ/20103045/c4fb11d286975fae0435b84ead47f6b3/unep_buildings_climate_change.pdf
Urban Land Institute & PriceWaterhouseCoopers (2010), Emerging trends in real estate – Europe. Available at: http://www.uli.org/sitecore/content/ULI2Home/ResearchAndPublications/EmergingTrends/~/media/Documents/ResearchAndPublications/EmergingTrends/Europe/2010/EmergingTrends2010.ashx
Van Sante, Maurice (2008), Engineering consultancy services in Europe, in ING: European Industry Review, 2008.
Van Sante, Maurice et. al. (2008), The Consulting engineering sector, ING. Available at: http://www.efca.be/197f6c66-1a96-4ce3-b6b8-f4b2550b2a97.pdf
VINC Group (2008), Sustainable development and approach based on risk management and responsibility. Available at: http://www.vinci.com/vinci/developpement_durable.nsf/(index)/INTRO01/$file/SD-annual-report-2008.pdf
Visscher, Henk & Frits Meijer (2007), Tasks and responsibilities for building control in Europe, CIB World Building Congress Paper, 2007.
Vrijhoef, Ruben (1999), Roles of supply chain management in construction, Berkeley, Ca, USA. Available at:

http://www.ce.berkeley.edu/~tommelein/IGLC-7/PDF/Vrijhoef&Koskela.pdf
Watt, Andrew (2009), A quantum of solace?, ETUC working paper 2009-05.
Wiejnen, Margot (2009), Innovative contracting practices in the road sector: opportunistic behaviour and its use in road markets.
Wirtschaftskammer Österreich (2009), "Brancheninitiative Bauwirtschaft – Die Wichtigsten Förderprogram im Überblick", Wien: Österreichischer Wirtschaftsverlag. Available at: http://portal.wko.at/wk/dok_detail_file.wk?AngID=1&DocID=587271&StID=282801
World Economic Forum (2010), Global Agenda Council reports 2010 – summaries of Global Agenda Council discussions from the Summit on the Global Agenda 2009, World Economic Forum. Available at: http://69.89.31.85/~qatarcon/economic/world/globalagenda2010.pdf
Wu, Xing et al (2005), Input-output analysis of the Chinese construction sector, Ruthledge. Available at: http://www.tamu.edu/classes/choudhury/articles/20.pdf
Xiaoying, Qian et. al. (2004), The construction sector in the People's Republic of China. Available at: http://www.ilo.org/public/english/employment/recon/eiip/download/setp/setp15.pdf
Zarnic, R. et al. (2007), Purpose and justification for new design standards regarding the use of glass products in civil engineering works. DG Enterprise and Industry Joint Research Centre. Available at: http://eurocodes.jrc.ec.europa.eu/doc/EUR22856EN
Zentral verband Deutches Baugewerbe (2009), "Konjunktur & Analyse. Aktuelle lage und entwicklung im bauhauptgewerbe". Available at: http://www.zdb.de/zdb.nsf/ED91DEA13C1B6438C125764A0025BCA6/$File/KA%202-2009.pdf

Annex II: Interviewee list

Interviews conducted besides for national reviews:

- Jonathan De Souza, Director of Construction Excellence UK
- Suzannah Nichol - Chief Executive of the National Specialist Contractors' Council (NSCC)
- Stuart Green, Director and Principal Investigator at Innovative Construction Research Centre (ICRC), University of Reading
- Peter Rogers, Director of Stan Hope Plc. and former Chairman of the Construction Commitment Task group.
- Tony Mulcahy, The Department for Business, Innovation and Skills (BIS – Construction Sector Unit) UK Government – Construction Commitments
- Mark Davis, Department of Communities and Local Government (UK Government) – Zero Carbon 2016
- Nick Scott, The Department for Business, Innovation and Skills (BIS – Construction Sector Unit) UK Government
- Mr. Eelco Brinkman, Case study Crisis and Recovery Act
- Ing. Ji•í Jakub Suchý (Association of construction entrepreneurs in Slovakia (ZSPS))
- Gabriel Szöllösi (Wienerberger)
- Katarína Bzovská (Ministry of construction and regional development Slovak Republic)
- Ing L. Hiddes (2RC) Esprithuis
- Flavio Monosilio (ANCE (Associazione Nazionale costruttori Edili – National Association of private construction contractors)) - Case study Italy
- Jan van der Putten, EFCA
- Adrian M Joyce, Director, Architects' Council of Europe
- Dorthe Nøhr, Danish Federation of Industry – Building materials – Elly Krems Hove
- Michael N. Nielsen, Director, Danish Construction Association
- Jørn Jensen (Digital construction), Danish Construction Association
- Henrik L. Bang, Director, The Danish Association of Construction Clients
- Andrew Warren, EuroACE
- Reijo Kangas, TEKES, Finnish Funding Agency for Technology and Innovation
- Åsa Söderström Jerring, FIA Sverige (www.fiasverige.se) is a public-private partnership aiming at increasing the level of innovation in the Swedish construction sector.
- Alessio Rimoldi, BIBM - European Federation for Precast Concrete
- Jeroen Vermeij, Eurofer

- Palle Thomsen and Daniel Sletbjerg, Danish Timber & Building Merchants' Trade Organisation
- Ger Maas BAM and Encord
- Oebele Vries EIB
- Jonathan De Souza, Director of Construction Excellence, UK
- Suzannah Nichol National Specialist Contractor's Council and Specialists Contractors' Group
- Ulrich Paetzold, FIEC (in relation to 97 agenda)
- Vicente Leoz-Arguelles, DG Enterprise and Industry, European Commission (in relation to 97 agenda)
- John Harrower, CEETB (in relation to 97 agenda)
- Jan Venstermans, ECCREDI (in relation to 97 agenda)
- Jussi Pääkkönen, Finnish Competition Authority
- Tarmo Pipatti, Confederation of Finnish Construction Industries
- Petri Peltonen, Finnish ministry of Employment and the Economy
- Per-Erik Josephson, Chalmers University of Technology
- Lena Wästfelt, Swedish Federation of Consulting Engineers and Architects
- Lise Langseth, member of Governing board of BYSAM - Swedish Building Material Producers Association
- Jan te Bos, EURIMA - European Insulation Manufacturers Association
- Elisa Setien, EFCC - European Federation for Construction Chemicals
- Philippe Pelletier, Avocat spécialisé en droit immobilier, Président du comité stratégique du "Plan bâtiment Grenelle", France
- Mrs. Ilse DRIES, Project co-ordinator for the Flemish government, Director sustainable living and building, Belgium
- Mr. Michael Herremans, Centrum Duurzaam Bouwen vzw (Centre for Sustainable Construction), Belgium
- Presentation of study findings and discussion with ENCORD council members at ENCORD council meeting 15. November 2010.

Annex III: Correspondence table

Table 0.1: Correspondence between NACE Rev.1.1 and NACE Rev.2

Subsector	NACE code (Rev.1.1)	Official name	Corre-sponding NACE code(s) (Rev.2)	Assessment
Onsite construction (Construction within NACE section F in accordance with standard usage)	45.1	Site preparation	43.1	NACE Rev.2 identical
	45.2	Building of complete structures or parts thereof; civil engineering *(Building of complete structures)*		See remarks on individual subdivisions below
	- 45.21	General construction of buildings and civil engineering works *(Buildings and civil engineering)*	41.2 + - 42.13 + 42.2 + - 42.99 (part of)	NACE Rev.2 largely identical except for the reclassification of construction of railroad and subway bridges and tunnels (to - 42.12) and the inclusion of subsurface utility work previously classified as construction of water projects as well as of erection of complete prefabricated constructions in wood, plastic and metal previously classified as manufacturing of construction materials Also in NACE Rev.2 the construction of industrial facilities other than buildings has become inseparable from the construction of sports facilities (combined in - 42.99)
	- 45.22	Erection of roof covering and frames *(Roof covering and frames)*	- 43.91	NACE Rev.2 identical except for reclassification of waterproofing (to - 43.99) and the inclusion of some joinery installation activities previously classified as manufacturing of construction materials
	- 45.23	Construction of highways, roads, airfields and sport facilities *(Transport and (sports) infrastructure)*	- 42.11 + - 42.12 + - 42.99 (part of)	NACE Rev.2 largely identical except for the inclusion of construction of railroad and subway bridges and tunnels previously classified as general civil engineering works Also in NACE Rev.2 the construction of sports facilities

Subsector	NACE code (Rev.1.1)	Official name	Corre-sponding NACE code(s) (Rev.2)	Assessment
				the construction of industrial facilities other than buildings (combined in - 42.99)
	- 45.24	Construction of water projects	- 42.91	NACE Rev.2 identical except for reclassification of subsurface work now classified as activities related to (onsite) construction of utility projects for fluids (- 42.21)
	- 45.25	Other construction work involving special trades (Other special trades construction work)	- 43.99 (part of)	NACE Rev.2 much broader including various specialised construction activities previously classified as other types of onsite construction activities within NACE section F
	45.3	Building installation	43.2	NACE Rev.2 identical except for reclassification of installation of security systems and inclusion of the repair and maintenance of elevators and escalators previously not classified as a construction activity as here defined
	45.4	Building completion	43.3	NACE Rev.2 identical except for inclusion of the installation of prefabricated joinery in wood, plastic and metal previously classified as manufacturing of construction materials
	45.5	Renting of construction or demolishing equipment with operator *(Renting of construction equipment with operator)*	- 43.99 (part of)	NACE Rev.2 much broader including various specialised construction activities previously classified as other types of onsite construction activities within NACE section F
Manufacturing of construction materials	20.3	Manufacture of builders' carpentry and joinery	- 16.22 + - 16.23	NACE Rev.2 identical except for reclassification of the erection of complete prefabricated constructions in wood as onsite construction activities within NACE section F
	26.4	Manufacture of bricks, tiles and construction products, in baked clay	- 23.32	NACE Rev.2 identical except for reclassification of repair and installation of relevant machinery and equipment
	26.5	Manufacture of cement, lime and plaster	23.5	NACE Rev.2 identical

Subsector	NACE code (Rev.1.1)	Official name	Corre-sponding NACE code(s) (Rev.2)	Assessment
	26.6	Manufacture of articles of concrete, plaster or cement	23.6	Most substantial part of this division contributes to the construction industry NACE Rev.2 identical
	26.7	Cutting, shaping and finishing of ornamental and building stone	23.7	Most substantial part of this division contributes to the construction industry NACE Rev.2 identical
	28.1	Manufacture of structural metal products	25.1	NACE Rev.2 identical except for reclassification of the erection of complete prefabricated constructions in metal as onsite construction activities within NACE section F Also repair of fabricated products has been reclassified in NACE Rev.2
Professional construction services	74.2	Architectural and engineering activities and related technical consultancy	71.1	NACE Rev.2 identical except for reclassification of aerial photography and weather forecasting Further, architectural and engineering activities are separated as distinct subdivisions of 71.1
Real estate services	70.1	Real estate activities with own property	41.1 + 68.1	NACE Rev.2 identical except for reclassification of the development of civil engineering projects now classified as onsite construction activities within NACE section F Also development of building projects (41.1) is no longer considered an activity within real estate proper, but an onsite construction activity within NACE section F
	70.2	Letting of own property	68.2	NACE Rev.2 identical
	70.3	Real estate activities on a fee or contract basis	68.3	NACE Rev.2 identical except for reclassification of facilities support activities

Annex IV: Other potentially relevant economic activities

Other economic activities within NACE Rev.1.1 with at least a partial relation to construction, but deemed too encompassing and/or lacking sufficient data include:

- CB14.1 Quarrying of stone
- CB14.2 Quarrying of sand and clay

- DD20.1 Sawmilling and planing of wood; impregnation of wood
- DD20.2 Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards

- DG24.3 Manufacture of paints, varnishes and similar coatings, printing ink and mastics

- DH25.21 Manufacture of plastic plates, sheets, tubes and profiles

- DI25.23 Manufacture of builders' ware of plastic

- DI26.11 Manufacture of flat glass
- DI26.12 Shaping and processing of flat glass
- DI26.14 Manufacture of glass fibres
- DI26.22 Manufacture of ceramic sanitary fixtures
- DI26.23 Manufacture of ceramic insulators and insulating fixtures
- DI26.26 Manufacture of refractory ceramic products
- DI26.3 Manufacture of ceramic tiles and flags
- DI26.8 Manufacture of other non-metallic mineral products

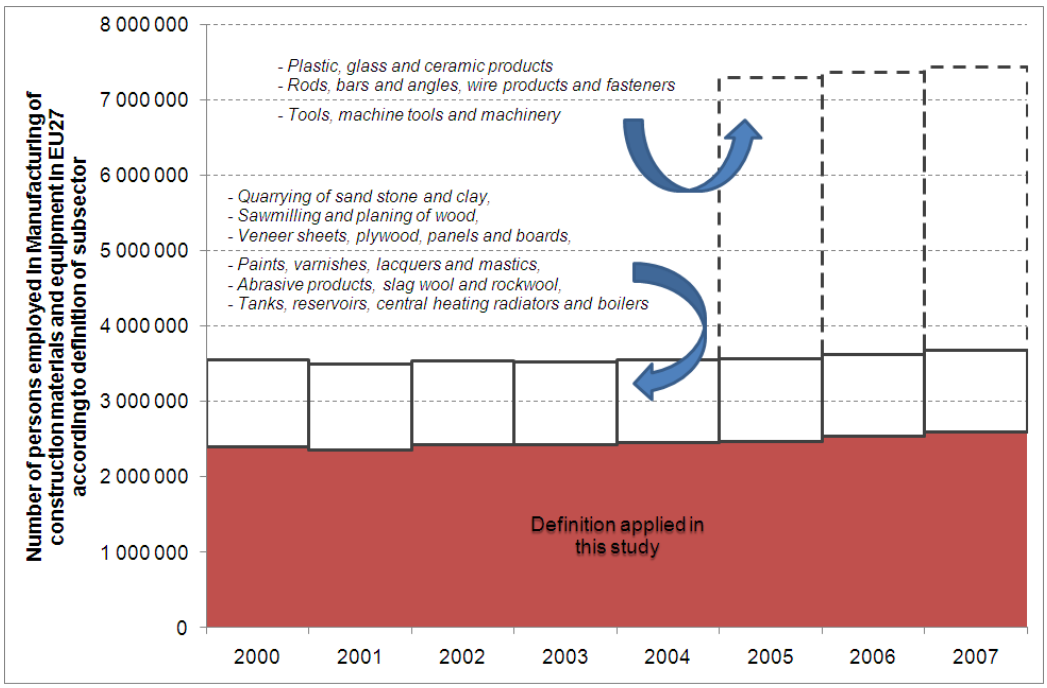
- DJ27.1 Manufacture of basic iron and steel and of ferro-alloys
- DJ27.2 Manufacture of tubes
- DJ28.2 Manufacture of tanks reservoirs and containers of metal; manufacture of central heating radiators and boilers

- DJ28.62 Manufacture of tools
- DJ28.63 Manufacture of locks and hinges
- DJ28.73 Manufacture of wire products
- DJ28.74 Manufacture of fasteners, screw machine products, chain and springs

- DK29.4 Manufacture of machine tools
- DK29.52 Manufacture of machinery for mining, quarrying and construction

- DL31.3 Manufacture of insulated wire and cable

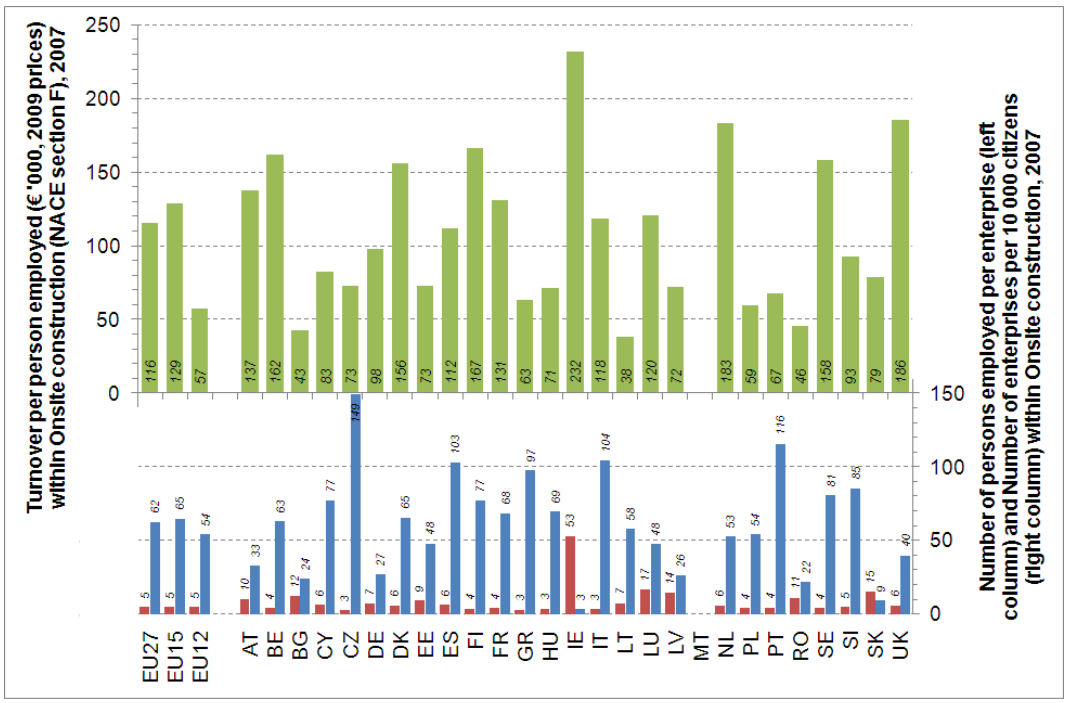
Figure 0.1: Number of persons employed in Manufacturing of construction materials in EU27 according to subsector definition, 2007



Source: Eurostat SBS (NACE Rev.1.1) and own calculations, Dashed outlines correspond to inclusion of all the economic activities listed above

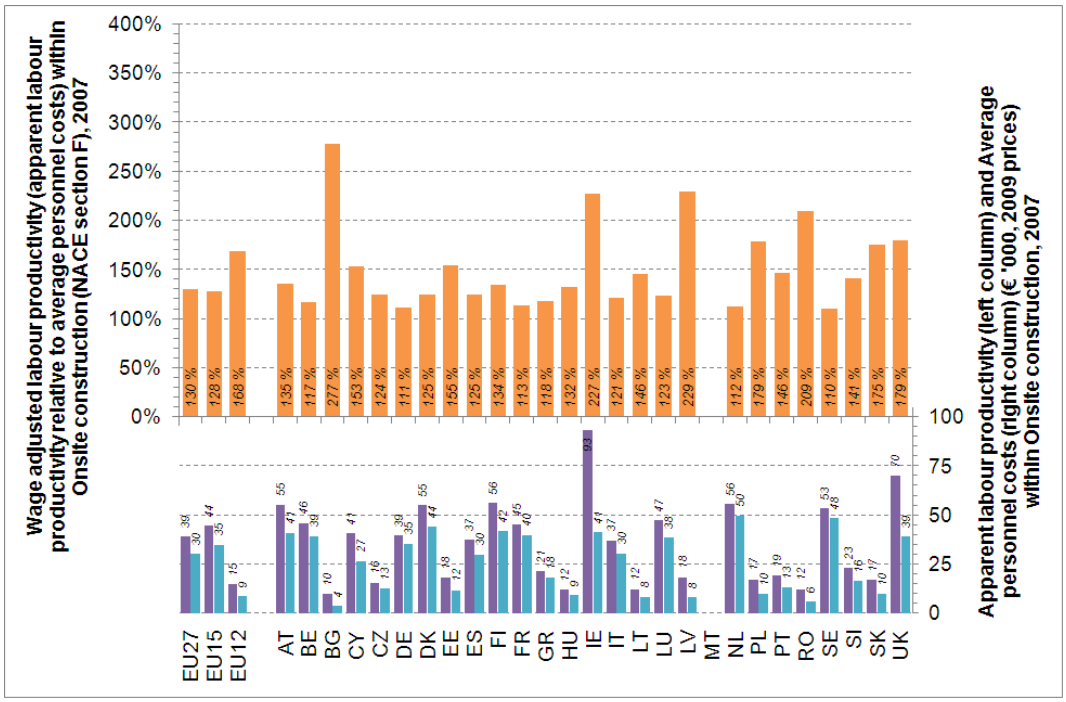
Annex V: Individual Member State performance in Onsite construction (NACE section F)

Figure 0.1: Turnover per person employed (2009 prices) and average enterprise sizes across Member States



Source: Eurostat SBS (NACE Rev.1.1) and own calculations, Comparatively high Irish figures at least to some extent an artefact of not reporting on enterprises in Onsite construction with less than 20 persons employed, Data not available for Malta

Figure 0.2: Wage adjusted labour productivity and its components (2009 prices) across Member States



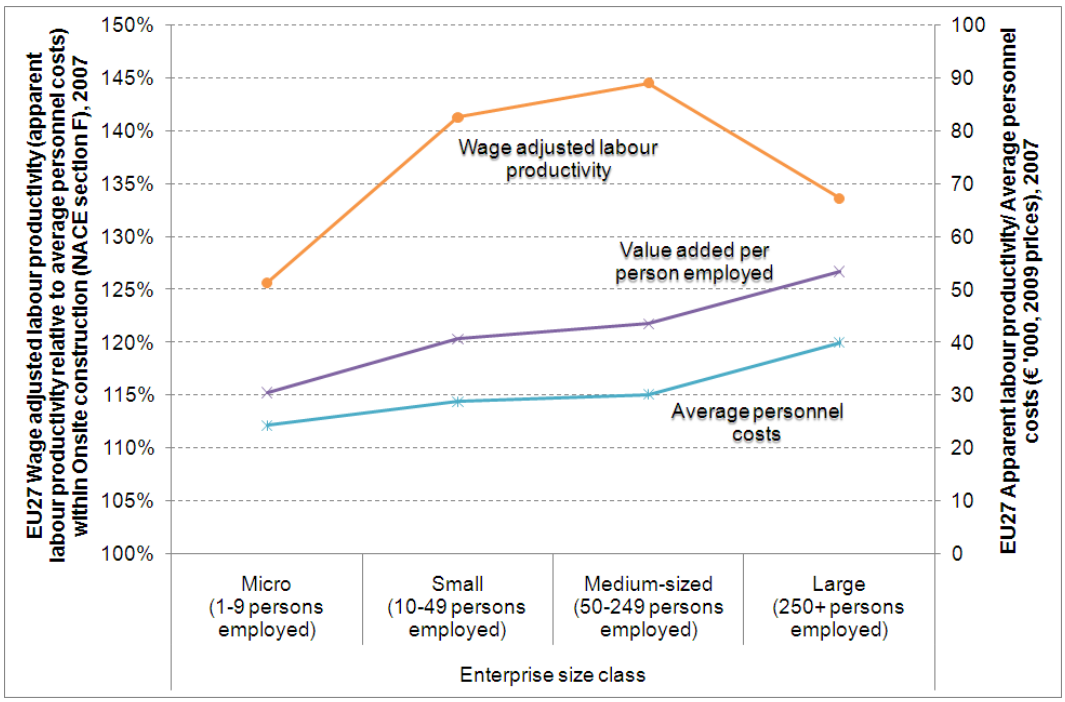
Source: Eurostat SBS (NACE Rev.1.1) and own calculations, Comparatively high Irish figures at least to some extent an artefact of not reporting on enterprises in Onsite construction with less than 20 persons employed, Data not available for Malta

Figure 0.1 and Figure 0.2 show the key performance indicators for Onsite construction for each of the 27 Member States in 2007. From the former it is apparent how enterprises in the Nordic countries, Benelux, Ireland and the United Kingdom tend to generate a comparatively high turnover per person employed (although note that Irish figures only refer to enterprises with 20+ persons employed) compared to both the New Member States and the remaining EU15 Member States. Lowest turnover per person employed among the EU15 Member States is recorded in Greece and Portugal whereas the lowest turnover per person employed among the New Member States is recorded in Bulgaria, Lithuania and Romania reflecting to some extent differences in purchasing power and productivity levels. Differences in purchasing power do not explain all the variation in turnover per person employed, however, and other factors likely include the quality of workforce and equipment as well as, for instance, the frequency of undeclared work. The former graph also shows some interesting regional patterns regarding enterprise sizes. On the one hand, the Southern European countries of Greece, Italy, Portugal and Spain all are characterized by a comparatively high number of enterprises relative to population size and a low average enterprise size (implying a comparatively high proportion of micro enterprises and/or comparatively small large enterprises). Only the Czech Republic registered a higher number of enterprises relative to its population size than these four countries in 2007. On the other hand, the countries with the largest average enterprise sizes tend to be New Member States. Thus, out of the five countries (not counting Ireland) where the average number of persons employed per enterprise exceeded 10 in 2007, the four were Bulgaria, Latvia, Romania and Slovakia, and the fifth was Luxembourg – the smallest of the EU27 Member States besides Malta (for which no

recent data is available) and the only country out of the five where the number of enterprises relative to population size was not correspondingly low.

From the latter graph it is apparent how enterprises in the New Member States generally tend to record comparatively higher wage adjusted labour productivity levels than enterprises in the EU15 Member States led by enterprises in Bulgaria, Latvia and Romania, which generated more than two Euros of value added for each Euro paid in personnel costs in 2007. Seven of the 11 New Member States for which data are available recorded wage adjusted labour productivity levels above 150% and only two, the Czech Republic and Hungary, recorded wage adjusted labour productivity levels below the EU15 average of 128%. Conversely, only Ireland and the United Kingdom among the EU15 Member States recorded wage adjusted labour productivity levels above 150% driven by a comparatively high value added per person employed (for Ireland the effect of not reporting data for enterprises with less than 20 persons employed are unclear, but wage adjusted labour productivity levels would appear to be relatively stable across enterprise size classes even if lower among micro enterprises, see Figure 0.3). The lowest wage adjusted labour productivity levels among the EU15 Member States in 2007 were recorded by Germany, France, the Netherlands and Sweden – in the latter two countries at least in part due to the highest average personnel costs of all Member States.

Figure 0.3: Wage adjusted labour productivity and its components (2009 prices) across enterprise size classes



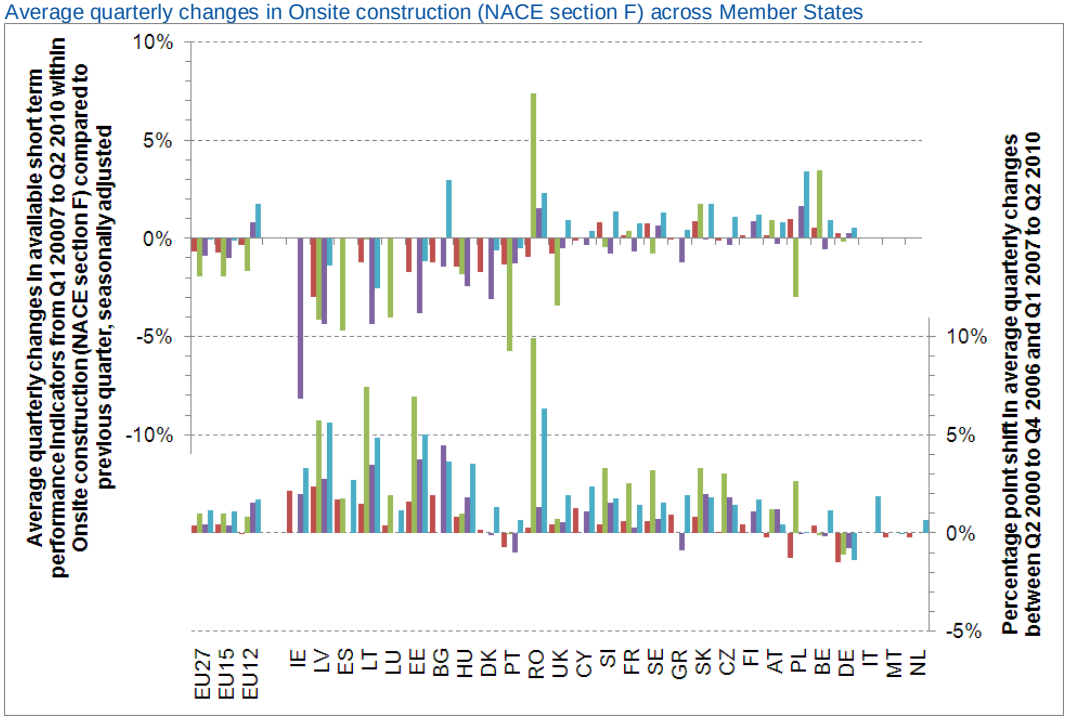
Source: Eurostat SBS (NACE Rev.1.1) and own calculations. EU27 averages do not include Ireland, Malta or Spain due to missing data

Developments since 2007

Developments have been most negative in Denmark, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Portugal, Spain and the United Kingdom where the average quarterly change across available indicators (number of persons employed, new orders, production volume and/or gross wages and salaries depending on country) has

shifted below zero (0%) with the average quarterly change for at least one individual indicator exceeding a negative one (-1%). On the other hand, Austria, Belgium, Finland, France, Germany, Poland, Romania, Slovakia and Sweden have fared relatively well in light of the crisis. In these countries the average quarterly change across available Onsite construction indicators has stayed positive and the average quarterly change for at most one individual indicator is below zero (0%). Those countries with the highest decreases in construction activities since 2007 are especially those that had the highest growth rates up to 2007. Another reason for the different impacts of the crisis on development in national production levels could be the nature and impact of already planned construction work as well as varying effects of national stimulus packages. Still, as clear from Figure 0.4, the Onsite construction subsectors in all Member States with the notable exceptions of Germany and possibly Belgium and Poland have been adversely affected by the financial crisis to some extent or other (both Germany and Poland fared comparatively poorly prior to 2007, however).

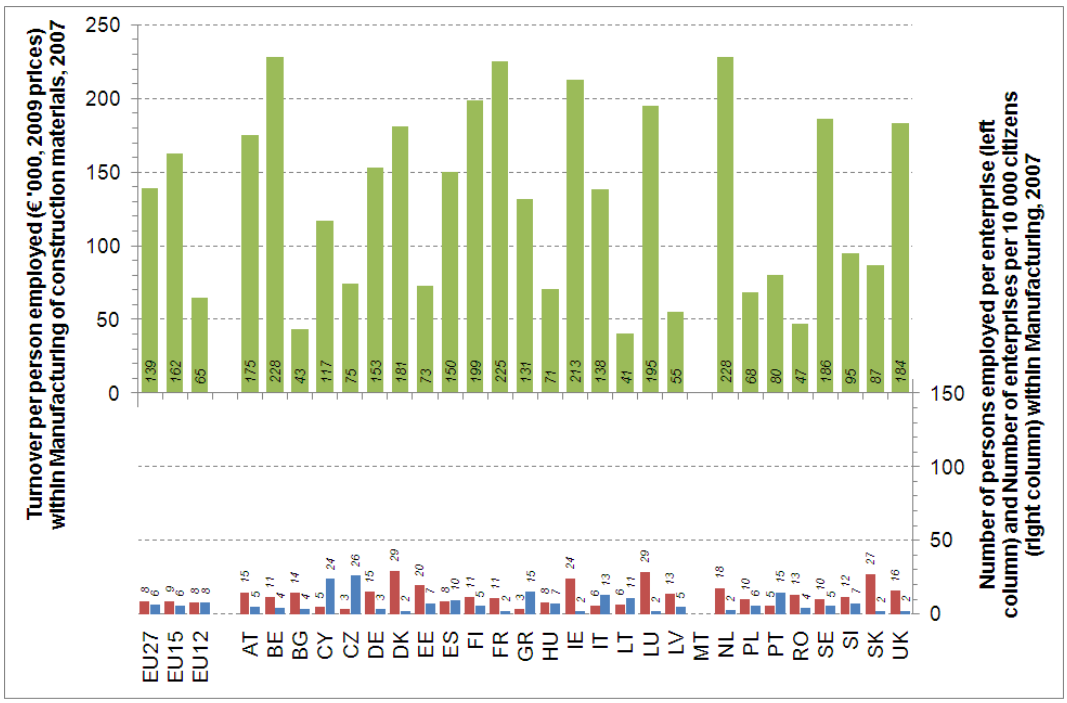
Figure 0.4: Average quarterly changes in Onsite construction (NACE section F) across Member States



Source: Eurostat STS (NACE Rev.2). Performance indicators include number of persons employed (far left red column), new orders (middle left green column), production volume (middle right purple column) and gross wages and salaries (far right blue column). Average quarterly growth in new orders based on data until Q4 2008 only to include New Member States. No current data available for Italy, Malta or the Netherlands. Countries ranked by swing in average quarterly changes between top and bottom rows

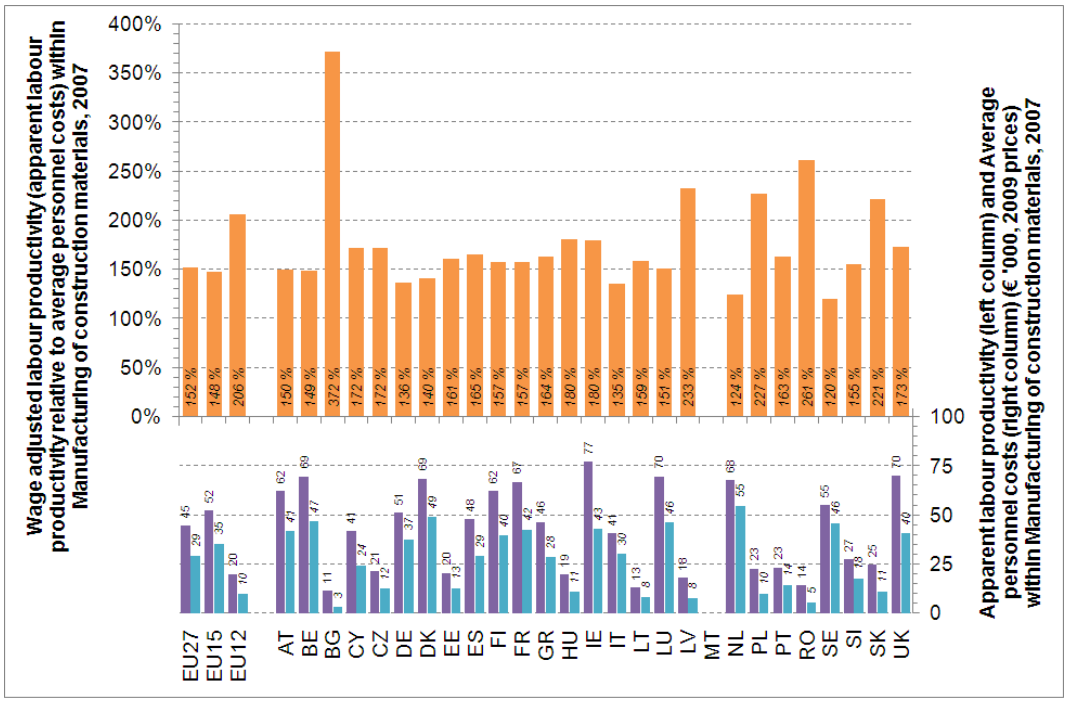
Annex VI: Individual Member State performance in Manufacturing of construction materials

Figure 0.1: Turnover per person employed (2009 prices) and average enterprise sizes across Member States



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Data not available for Malta

Figure 0.2: Wage adjusted labour productivity and its components (2009 prices) across Member States



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Data not available for Malta

Figure 0.1 and Figure 0.2 show the key performance indicators for Manufacturing of construction materials for each of the 27 Member States in 2007. From the former it is apparent how also in Manufacturing of construction materials enterprises in the Nordic countries, Benelux, Ireland and the United Kingdom together with France tend to generate a comparatively high turnover per person employed compared to both the New Member States and the remaining EU15 Member States. Lowest turnover per person employed among the EU15 Member States is recorded in Portugal whereas the lowest turnover per person employed among the New Member States is recorded in Bulgaria, Lithuania and Romania as was the case with enterprises in Onsite construction. When comparing average turnover per person employed between subsectors country by country, enterprises in Manufacturing of construction materials tend to generate a significantly higher turnover than enterprises in Onsite construction in the EU15 Member States whereas this is not the case in the New Member States even in percentage terms. This disparity suggests that manufacturing enterprises in the EU15 Member States are able to and do employ more modern technology and/or a better qualified workforce than manufacturing enterprises in the New Member States. Also in Manufacturing of construction materials there is a regional pattern of comparatively high numbers of enterprises relative to population size and low average enterprise sizes in Southern Europe. The regional pattern noted in Onsite construction of fewer, but larger enterprises in Eastern Europe is less apparent, however.

From the latter graph it is apparent how manufacturing enterprises like onsite construction enterprises in the New Member States generally tend to record comparatively higher wage adjusted labour productivity levels than enterprises in the EU15 Member States led by enterprises in Bulgaria, Latvia, Poland, Romania and Slovakia, which generated more than two Euros of value added for each Euro paid in

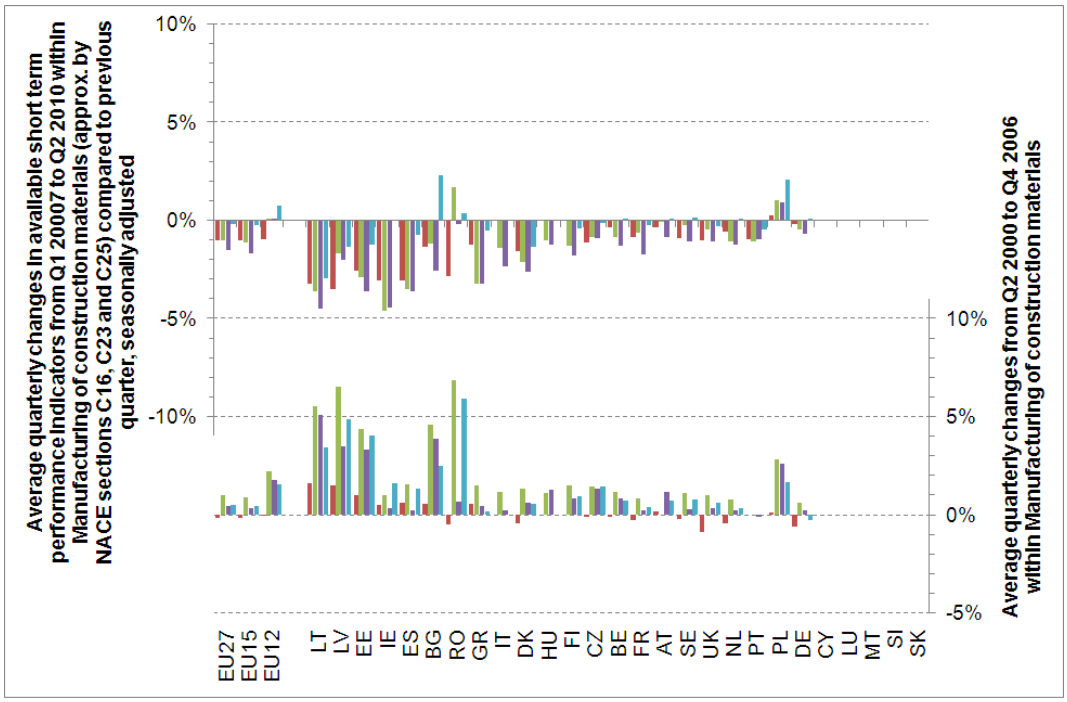
personnel costs in 2007. All of the 11 New Member States for which data are available recorded wage adjusted labour productivity levels above 150%, the lowest levels being recorded in Estonia, Lithuania and Slovenia, and none recorded wage adjusted labour productivity levels below the EU15 average. Conversely, seven of the EU15 Member States recorded wage adjusted labour productivity levels below 150%, namely Austria, Belgium, Denmark, Germany, Italy, the Netherlands and Sweden. Comparatively high average personnel costs are a major factor in several countries. Like in Onsite construction the highest wage adjusted labour productivity levels among the EU15 Member States in 2007 were recorded by Ireland and the United Kingdom although much closer to the EU15 average in this subsector. Country by country differences between Manufacturing of construction materials and Onsite construction are more apparent in the New Member States in value added per person employed and wage adjusted labour productivity levels than in turnover per person employed, matching the differences observed between subsectors in the EU15 Member States. The generally higher wage adjusted labour productivity levels in Manufacturing of construction materials largely are driven by higher value added per person employed given the similar average personnel costs in both subsectors in most countries.

Developments since 2007

Developments have been most negative in Denmark, Estonia, Greece, Ireland, Italy, Latvia, Lithuania and Spain where the average quarterly change across available indicators (number of persons employed, turnover, production volume and/or gross wages and salaries with variations across countries has shifted to below a negative one (-1%) and the average quarterly change for at least one individual indicator exceeds a negative two (-2%). Conversely, the average quarterly change across available indicators has been positive in only one country after 2007, namely in Poland. An additional nine countries, Austria, Belgium, the Czech Republic, France, Germany, the Netherlands, Portugal, Sweden and the United Kingdom, have recorded average quarterly changes across available indicators between zero and a negative one (-1%) with average quarterly change on no individual indicator exceeding a negative two (-2%), though (see further Figure 0.3). Compared to developments since 2007 in Onsite construction, two groups of Member States seem to cluster at either end of the spectrum with current performance levels in the Baltic States, Ireland, and Spain consistently being the most adversely affected by the financial crisis and performance levels in Austria, Belgium, Germany, Poland and Sweden consistently being among the least affected. Apart from the impact or lack of impact of construction projects planned before the crisis and stimulus packages, the manufacturing sector as well as the trading sector (see below) are always likely to be directly affected by developments in Onsite construction.[54]

[54] The general availability of Eurostat STS data is very limited beneath the NACE section level. It is thus impossible to precisely detail developments within the various NACE divisions and subdivisions that make up the composite Manufacturing of construction materials subsector as here defined. However, Manufacturing of construction materials comprises significant shares of NACE sections C16, C23 and C25 and trends in these broader categories of economic activity thus cannot move entirely independently of activities within the relevant NACE subcategories, or at least are highly unlikely to do so. Moreover, trends within each of these broader categories of economic activity are highly similar suggesting an impact of the financial crisis common to most types of economic activity. Accordingly, aggregate developments within Manufacturing of construction materials have been approximated as the weighted average of changes within C16 (15%), C23 (45%) and C25 (40%) based on relative sizes of relevant divisions and subdivisions in terms of persons employed, turnover, value added and personnel costs.

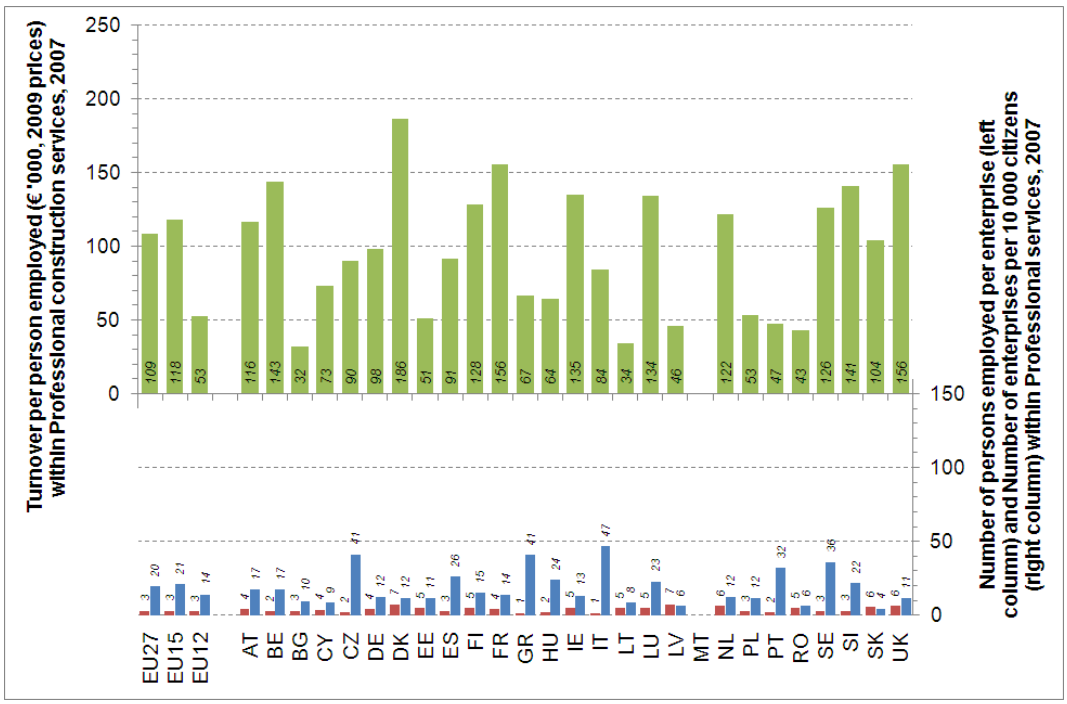
Figure 0.3: Average quarterly changes in Manufacturing of construction materials across Member States



Source: Eurostat STS (NACE Rev.2). Performance indicators include number of persons employed (far left red column), turnover (middle left green column), production volume (middle right purple column) and gross wages and salaries (far right blue column). Average quarterly growth in number of persons employed in Ireland based on data until Q2 2009 only due to missing data. No current data available for Cyprus, Luxembourg, Malta, Slovakia or Slovenia. Countries ranked by swing in average quarterly changes between top and bottom rows

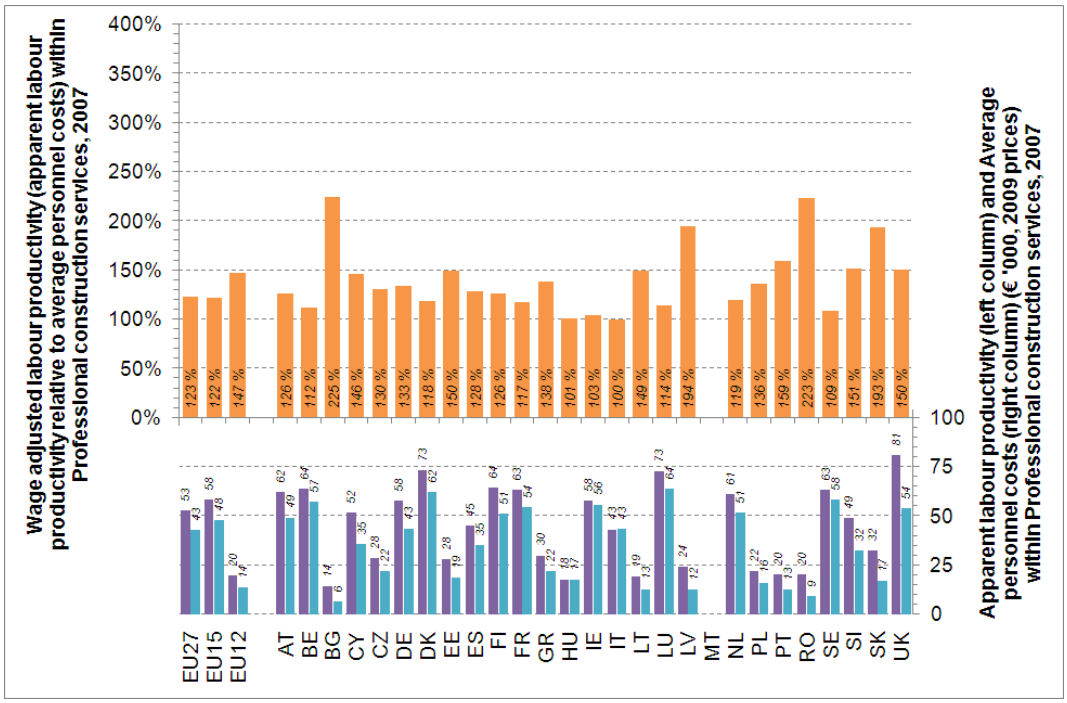
Annex VII: Individual Member State performance in Professional construction services

Figure 0.1: Turnover per person employed (2009 prices) and average enterprise sizes across Member States



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Data not available for Malta

Figure 0.2: Wage adjusted labour productivity and its components (2009 prices) across Member States



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Data not available for Malta

Figure 0.1 and Figure 0.2 show the key performance indicators for Professional construction services for each of the 27 Member States in 2007. From the former it is apparent how enterprises in the Nordic countries, Benelux, Ireland and the United Kingdom together with France and Slovenia tend to generate a comparatively high turnover per person employed compared to the other Member States., The lowest turnover per person employed among the EU15 Member States is recorded in Portugal whereas the lowest turnover per person employed among the New Member States is recorded in Bulgaria and Lithuania shortly followed by Latvia and Romania. These patterns resemble patterns in the other two subsectors. When comparing average turnover per person employed across subsectors, the only countries in which turnover per person employed is highest in Professional construction services are the Czech Republic, Denmark, Slovakia and Slovenia. Both the regional pattern of comparatively high numbers of enterprises relative to population size and low average enterprise sizes in Southern Europe and the regional pattern of fewer, but larger enterprises in Eastern Europe noted in Onsite construction are apparent to a lesser extent in this subsector.

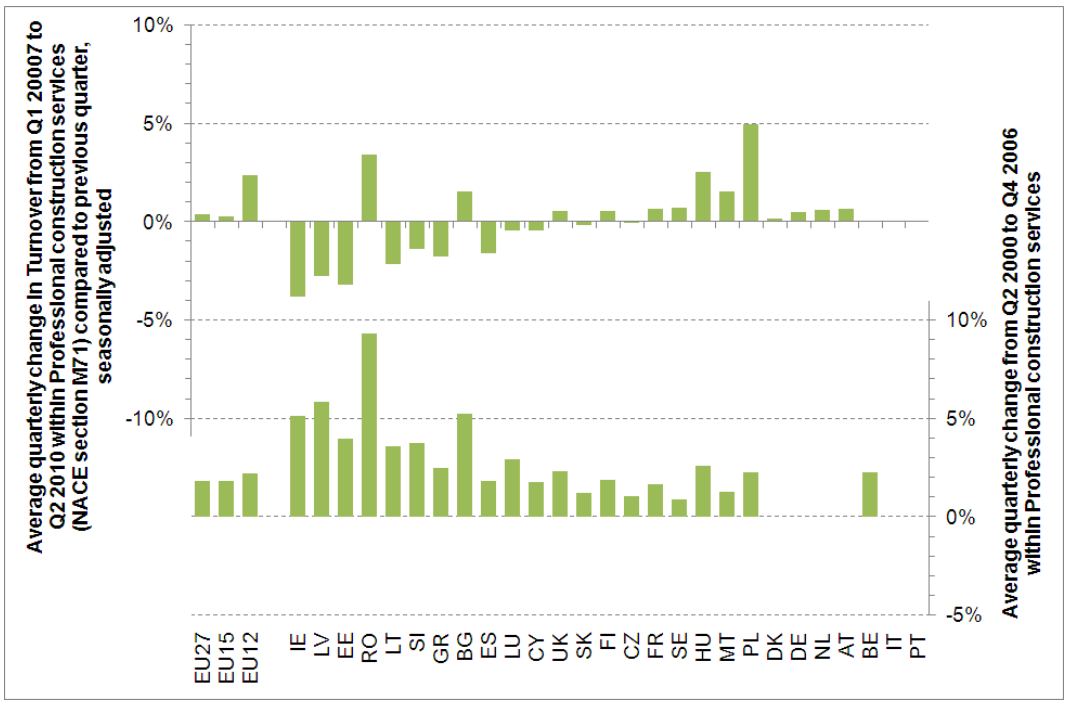
The latter graph shows how professional construction services enterprises in the New Member States generally tend to record comparatively higher wage adjusted labour productivity levels than enterprises in the EU15 Member States. As in the other subsectors wage adjusted labour productivity levels in 2007 were highest in enterprises in Bulgaria, Latvia, Romania and Slovakia, which generated nearly two Euros or more of value added for each Euro paid in personnel costs. Compared to the other subsectors there are some notable variations as well, however. Hungary and Ireland recorded two of the three lowest wage adjusted labour productivity levels in Professional construction services in 2007 and together with Italy were very close at generating less than one Euro of value added for each Euro paid in personnel costs. Equally, Portugal recorded the

highest wage adjusted labour productivity among the EU15 Member States at above 150%, a feat only otherwise achieved by the United Kingdom. These discrepancies likely reflect the upward pressure on average personnel costs of differences in the stock of available labour force with the required skills base.

Developments since 2007

Developments have been most negative in Estonia, Ireland, Latvia and Lithuania where the average quarterly change in turnover since 2007 has shifted to below a negative two (-2%), followed by Greece, Spain and Slovenia where the average quarterly change in turnover since 2007 has shifted to below a negative one (-1%). On the other hand, the average quarterly change in turnover since 2007 has remained positive in Austria, Bulgaria, Denmark, Finland, France, Germany, Hungary, Malta, the Netherlands, Poland, Romania, Sweden and the United Kingdom, that is, in at least 13 of the EU27 Member States. Hungary, Poland and Romania even have recorded average quarterly changes above a positive 2 (2%) Nevertheless, Figure 0.3 quite clearly shows that also the Professional construction services subsectors to some extent have been adversely affected by the financial crisis in most Member States other than Poland and possibly Hungary, Malta and Sweden.

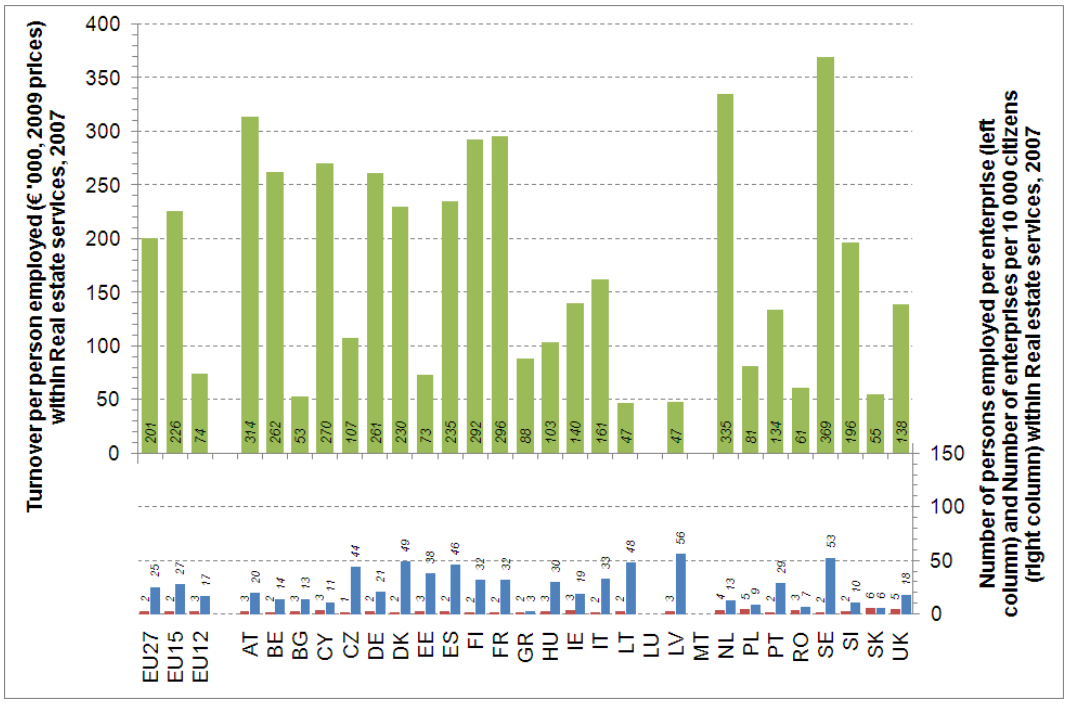
Figure 0.3: Average quarterly changes in Professional construction services across Member States



Source: Eurostat STS (NACE Rev.2). No current data available for Belgium, Italy and Portugal. Countries ranked by swing in average quarterly change between top and bottom rows

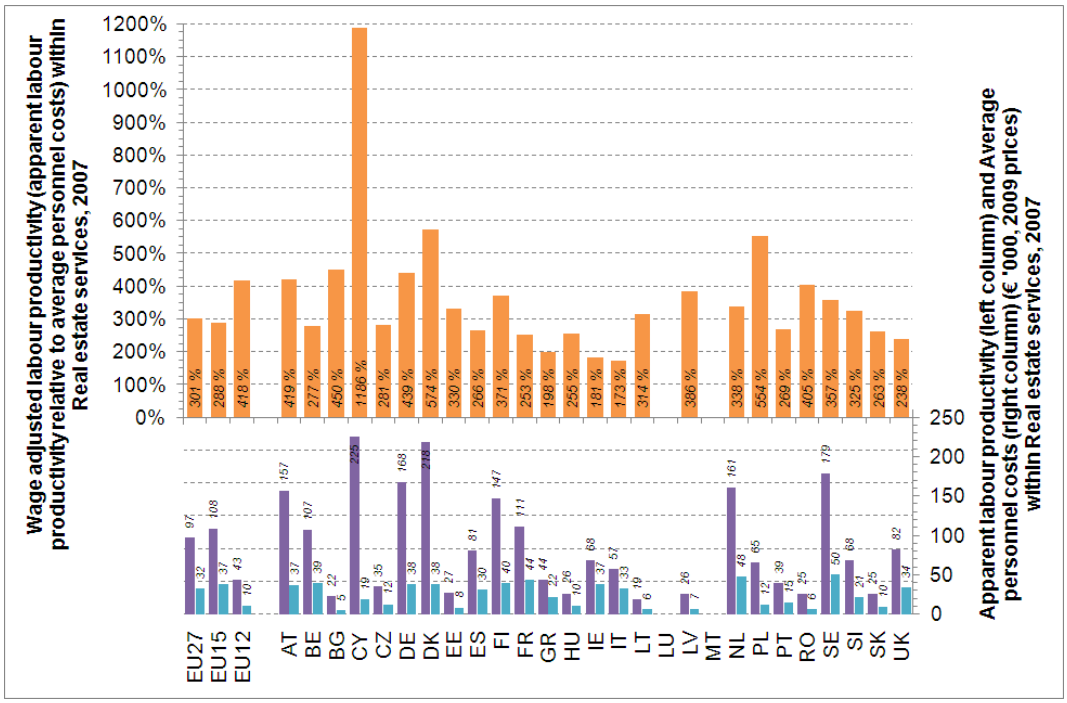
Annex VIII: Individual Member State performance in Real estate services

Figure 0.1: Turnover per person employed (2009 prices) and average enterprise sizes across Member States



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Data not available for Luxembourg and Malta

Figure 0.2: Wage adjusted labour productivity and its components (2009 prices) across Member States



Source: Eurostat SBS (NACE Rev.1.1) and own calculations. Data not available for Luxembourg and Malta

Figure 0.1 and Figure 0.2 show the key performance indicators for Real estate services for each of the 27 Member States in 2007. From the former it is apparent how enterprises in the Nordic countries and Benelux together with Austria, Cyprus, France, Germany and Spain tend to generate a comparatively high turnover per person employed compared to the other Member States. The lowest turnover per person employed among the EU15 Member States is recorded in Greece followed by Ireland, Portugal and the United Kingdom whereas the lowest turnover per person employed among the New Member States is recorded in Bulgaria, Latvia, Lithuania, Romania and Slovakia. Especially the rankings at the top of Cyprus and Spain and at the bottom of Ireland and the United Kingdom present divergences from the patterns seen in the construction sector. Only a tendency for comparatively larger enterprises in Eastern Europe, but not necessarily less frequent relative to population size, can be observed in terms of regional patterns.

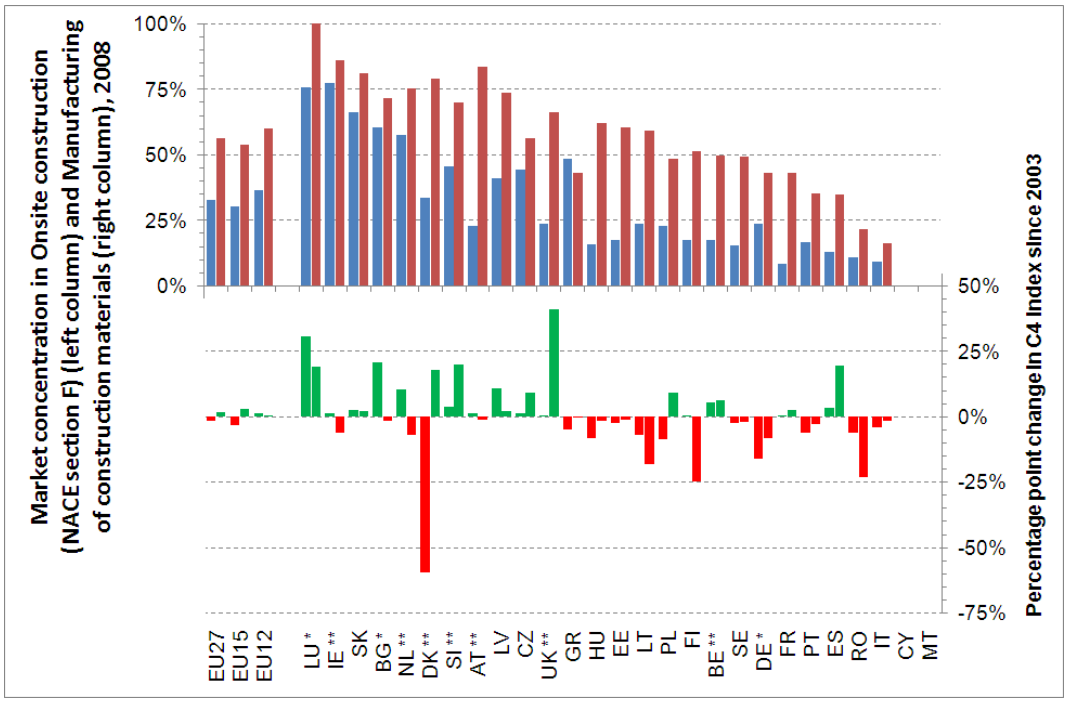
The latter graph shows how real estate services enterprises record hugely different wage adjusted labour productivity levels across the EU27 with the apparent tendency for higher wage adjusted labour productivity levels in the New Member States mainly being an artefact of comparatively high wage adjusted labour productivity levels in the two largest countries, Poland and Romania. By far the highest wage adjusted labour productivity level in 2007 was recorded in enterprises in Cyprus, which generated close to 12 Euros of value added for each Euro paid in personnel costs. Five other countries recorded wage adjusted labour productivity levels above 400% including Poland and Romania as well as Austria, Denmark and Germany. Conversely, eight of 14 EU15 Member States and three of the 11 New Member States for which data are available recorded wage adjusted labour productivity levels below 300% in 2007, namely Belgium, the Czech Republic, France, Greece, Hungary, Ireland, Italy, Portugal, Slovakia, Spain and the United Kingdom.

Developments since 2007

No short term statistics are available from Eurostat in relation to developments in the Real estate services sector. Nonetheless, it seems fair to assume that the onset of the financial crisis has impacted Real estate services at least as negatively as the overall construction sector given the reliance of most activities in Real estate services on the prospect of increasing prices in the various housing markets for residential and non-residential buildings. This is unlikely to be the case given the evidenced lull in activities in Onsite construction – the supply side of the housing market as it is – and free-falling housing prices, longer selling periods and higher vacancy rates as well as postponed, down-scaled or entirely cancelled housing projects are well-known occurrences in the last couple of years. In fact, the financial crisis commonly is attributed to the collapse of the residential housing market after a prolonged period of unrealistic price growth financed through low security high risk loans and speculative borrowing.

Annex IX: Individual Member State market concentration rates

Figure 0.1: Market concentration in Onsite construction (NACE section F) and Manufacturing of construction materials as measured by C4 index across Member States, 2008



*Source: Amadeus, Bureau Van Dijk (NACE Rev.1.1) and own calculations. C4 index indicates the share of turnover generated by the four largest enterprises in a given country and economic activity. Subsector index scores calculated as average of available index scores for individual divisions within subsectors. * and ** denote countries where turnover is known for less than 50% and 75% of enterprises respectively. No data available for Cyprus and Malta. Countries ranked by average C4 index score across subsectors*