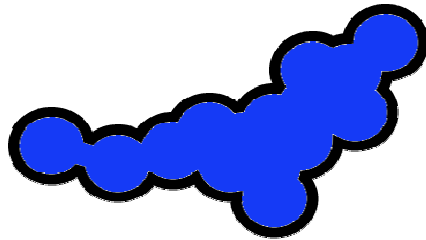

Globalisation and Collaborative Working Environments



new global

Policies and Strategies Fostering Global
Collaboration of European Companies



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1 Introduction and overview

1.1 Globalisation: a challenge for modernisation of business

Globalisation¹ can be described as the process of growing integration of economies and societies around the world, leading to increasing connectivity, integration and interdependence in the economic, social, technological and political spheres. Globalisation is characterized by the increased mobility of goods, services, technology, capital and labour around the world. Key forces giving further impetus to globalisation in recent years have been the growing liberalisation of markets, and the impact of information and communication technologies on products and services, business operations and markets, which is enabling global business and global working. However, globalisation also should be considered as an ongoing process affected by enterprise strategies and government policies.

There is a wealth of studies available looking into various aspects of globalisation, e.g. its impacts and implications regarding markets, occupations and employment, regional economies, work environments, business strategies, and the knowledge economy. This report takes its departure in the implications of globalisation of markets and industries for the company work and business environment. Its core focus is on the role of collaborative working environments based on the use of advanced ICTs to cope with the implications, challenges and opportunities of globalisation. We see such collaborative working environments not as primarily technology oriented, but as combinations of physical, IT-based and social or organisational infrastructures supporting people in their work and supporting companies in new forms of business collaboration. In particular, we look into the conditions for European firms, including SMEs, to exploit the opportunities of global work and business through adopting global collaborative working environments and engaging in global collaboration.

This is all the more important as the discussion regarding the business impact of globalisation cannot be covered exclusively in addressing low costs entrants in emerging economies causing increasing price competition and offshoring of jobs in western countries. Rather, doing business globally implies a globalisation of business strategies and global access to resources. Getting access to scarce resources such as human skills in engineering and science, access to local market channels, and creating partnerships is becoming more and more important to ensure competitive strength.

Policies to stimulate global collaboration in globalised work and business environment	(1) Societal dimension: market liberalisation and competition, trade policy, labour market flexibility, employment security, information infrastructure, workforce mobility
	(2) Enterprise dimension: industry competition and collaboration, enterprise networks, global supply chains, collaboration business models, regional clusters
	(3) Workplace dimension: Work organisation, cultural aspects of collaboration, collaborative working environments, flexible working, ICT adoption, virtual working

Figure 1: Three dimensions of stimulating global collaborative working

¹ This description uses definitions of the World Bank (2000, 2001), European Commission (2003), OECD (2005), Wikipedia (<http://en.wikipedia.org/wiki/Globalisation>).

In this paper we focus on policies and strategies to support such globalisation approaches of companies. For this purpose we study the role of policies to promote global collaborative working practices to achieve global ambitions and opportunities at three levels: (1) the societal level of creating social and economic conditions for global collaborative working, (2) the enterprise level of adopting new forms of global collaborative work organisation within and across companies and value chains or value networks, and (3) the team and workplace level for adopting new work practices and ICTs in collaboration between people (Figure 1). Main focus is on dimensions 2 and 3 as dimension 1 is considered as source of regulations and frameworks impacting on globalisation processes and influencing global collaboration strategies.

1.2 The global business environment

Globalisation has changed the business environment as it has changed the factors determining the attractiveness of markets (low cost entrants and new business models of “challengers” from emerging economies) and changed the types of strategies that are effective to compete in such markets. An example to illustrate the implications for SMEs is taken from an initiative to improve collaboration in product innovation in Southern-Netherlands². Large manufacturers in electronics systems such as Philips, FEI Electronics and ASML are sensitive to the pressure of global markets to cope with shorter life cycles of products, ever new product generations, adaptation to changing consumer demands, and shorter time to market. Products are becoming more and more complex and require a high level of skills, life-cycle support and integration of services. Manufacturers cope with this situation by creating networks of advanced suppliers that are able to work with them across the full life product cycle and across different generations of product innovations. Such strategies are grounded in new business models and new collaborative agreements. As place still matters due to factors of human understanding and iterative development requiring close personal contact, manufacturers tend to be located where production factors are most suited to their business strategy. Regional suppliers are facing the challenge to cope with increasing demanding requirements in terms of skills and collaboration. As markets are becoming more global, SME suppliers are also encouraged to participate in global value networks.

This example illustrates a few changing factors in business strategy in coping with globalisation.

- In deciding on location low costs matter but in many markets product quality and customer responsiveness are the key factors. The required capability and skills to cope with increasingly complex products and changing consumer demands is priority.
- Companies tend to look more and more carefully to global sourcing strategies based on business models enabling longer term collaboration, collaborative innovation and risk-sharing.
- Companies tend to integrate resources from anywhere in their production, innovation and marketing strategies, adapting their business locations to the priority to find adequate skills and be located closely to customer markets.
- This also implies that work is moved more and more to places where critical but scarce resources are available at the right cost.

² Based on Telematica Instituut project in collaborative product innovation in the manufacturing industry in Southern Netherlands, 2005- 2006.

- SME suppliers increasingly face the challenge to play their role in global business networks by enhancing their skills level, by specialisation and by engaging in global partner networks.

Three major developments can be identified determining the evolving offshoring landscape:

- Traditional offshore outsourcing of routine work, which is driven by low cost, for example moving call center functions to India.
- In emerging economies, “challenger” companies (e.g. from India and China: Tata, Wipro, Acer, Lenovo as examples) are moving up the value chain to compete with EU and US companies in their home markets. Often such competition is based on disruptive business models.
- Globalisation of high-skilled work, based on the motive of acquiring access to scarce human resources which are not available in the home country but must be found elsewhere.

From the point of view of location and production business decisions, factors like availability of skills and talent, existence of growing and demanding markets, and the educational, research and innovation infrastructure are critical to determine the attractiveness of a given region. Government policies must cope with such factors.

1.3 The New Global study

New Global is studying, on the basis of case studies and a business survey, the impacts of globalisation forces on the way companies, among which SMEs, are operating and organising their work environment. In particular, New Global looks into the issue how a new generation of collaborative work environments enabled by new work practices and ICTs could foster global collaboration in order to exploit business opportunities for global value creation.

As the ongoing process of globalisation has important implications for industry, policy and strategy issues need to be dealt with. Globalisation issues are in the heart of EU as well as national policies regarding growth and employment, international trade, economic integration, social affairs, and information society. For individual companies, the process of globalisation evidently poses challenges to rethink business strategies in the domains of access to knowledge and skills, product portfolio, production strategy and market positioning. To the “normal” complexity of business strategy is added the complexity of global collaboration and partnerships.

This paper proposes a set of policy and strategy implications of the process of globalisation for discussion with business and policy stakeholders. Its focus is on challenges for policies and strategies, in particular on the policies, strategies and policy instruments that will enable European-based companies to identify and exploit the new opportunities which are inherent in globalisation of the work environment, given the specific European strengths and capabilities. The dialogue with stakeholders will be organized during 2008, by means of conference discussion sessions (ICE 2008, June 2008), stakeholder discussions, community building and forum discussion (AMI@Work Communities and VE-Forum), general dissemination activities (New Global Newsletter), and a final workshop (September 2008).

The key aspects of policy and strategy responses covered by the New Global project and presented in this report are the following:

- Which policies regarding framework conditions, such as infrastructure, skills and labour flexibility, should be set in place by the EU in order to enable companies to better exploit opportunities of global virtual collaboration and doing business globally.
- Which policies could transform Europe into a more attractive environment for innovation and research, also for companies and institutes that are now located in emerging economies such as South-East Asia, China, South-America.
- How to stimulate research and innovation communities and their supporting networks, in order to strengthen the development towards open innovation and creating a more innovative Europe (as promoted by the Aho Report on Creating an Innovative Europe, 2006).
- How to promote infrastructures for collaborative networks that are to be set in place in order to strengthen European capabilities to become part of global open innovation systems or networks.

2 Globalisation forces and the business environment

2.1 Introduction

The implications of globalisation for the work environment originating from the societal level have been addressed in a number of recent initiatives and studies. This chapter reviews some of these studies, as far as they are related to the work and business environment. This is to clarify how forces of globalisation are shaping the societal framework conditions which influence business strategies regarding global collaborative working and global collaboration.

Globalisation issues are in the center of national and EU policies regarding integration, international trade, enterprise, employment and social affairs, and information society. In the European Commission work programme 2008 (European Commission, 2007), globalisation appears prominently, especially in the form of a contextual development which presents challenges. This is not strange, given the attention which is devoted in the public debate to issues such as outsourcing and transfer of jobs, cheap goods from the East, company takeovers, and differences in labour laws. Many international organisations such as OECD, ILO, WTO, IMF and the World Bank are regularly publishing analyses of the threats and opportunities of globalisation. One of the European Commission policy priorities in this area is to provide support to Europe's large number of SMEs, which tend to find it difficult to fully exploit the potential provided by globalisation.

Policy areas involved are, on the one hand, generic (trade and market liberalisation, labour market flexibility), on the other hand, sectoral. As a recent example, the European Commission DG Information Society and Media has launched a public consultation to help to strengthen the global position of ICT industries in Europe by ensuring access to global markets. The Commission aims to formulate a more ambitious and targeted EU strategy for ICT that helps to explore new markets for EU industries, to improve the competitiveness of Europe's ICT industry in global markets, and to promote EU interests worldwide. The consultation covers regulatory issues, market access and trade issues, innovation and research in ICT (e.g. collaboration with non-EU partners), and cyber-security issues at the global level.

2.2 Globalisation, trade and economic restructuring

The general ambition of the EU in the domain of trade is to work for transparent and fair trade rules worldwide, and to try to mitigate negative sides of globalisation by making sure that the developing countries benefit from free trade. The European Union also aims to involve citizens in trade policy and to include environmental and social rules in trade agreements (European Commission, 2003).

Important trends concerning global trade and how it affects the business environment are related to the increasing importance of emerging economies in global trade (in particular India and China), thus also increasing the labour supply, and to the increasing importance of international production networks, including offshoring³. As a result of the internationalisation of production networks, business activities are relocated and imports and exports are strongly increasing. International trade is increasingly in intermediate inputs rather than final goods and services⁴. ICT has contributed strongly to tradability of services, thus to the increase in

³ OECD (2007): Policy Brief: Globalisation, Jobs and Wages. June 2007

⁴ OECD (2007), Moving up the Value Chain: Staying Competitive in the Global Economy. Main Findings. See also David T. Coe (2007), Globalisation and Labour Markets: Policy Issues Arising from the Emergence of India and China. OECD Social, Employment and Migration Working Papers No. 63.

global trade of services. So, globalisation affects not only offshoring of manufacturing but also services sectors.

As the OECD (2007) formulates it, the globalisation of value chains and growing global linkages between countries results in a decreasing share of production created domestically. Manufacturing exports have grown much faster than production in previous years in all OECD countries (De Backer, 2006). The advance in ICT has contributed strongly to create new divisions of labour at inter-regional, national and global scales.

Without doubt this has important economic structure and labour market implications. Labour market implications are, in particular, the increasing amount of jobs susceptible for offshoring and the increasing opportunities to acquire access to competences and skills in emerging economies (see sections below).⁵

SMEs face new competitive challenges, but are also presented with new opportunities, for example to become part of global production and service networks. Larger companies will face the need to reassess their global strategies.

Table 1: Globalisation of trade and production networks: trends, business relevance, policies

Trends and developments	Business relevance	Policies / strategies
Increasing global trade in manufacturing and services / potential for offshoring	Productivity benefits of globalisation	Transparent and fair trade rules, also regarding IPR
Globalisation of production networks	Increasing competition for suppliers from emerging economies	Development countries to benefit from free trade
Relocation of multi-national company business activity abroad	On somewhat longer term increasing competition for OEMs from emerging economies	Policies to stimulate industry upgrading (skills, education, innovation, work organisation, moving up the value chain)
Relocation of R&D close to emerging markets	New centres of economic growth, emerging markets	Policies to increase attractiveness of EU nations / regions
New centres of economic growth (India, China), move up value chain	Management of global workforce	Flexible labour market policies
New divisions of labour		Policies to SME stimulate participation in global networks

Table 1 presents an overview of trends and developments in globalisation, trade and economic restructuring, their relevance for business, and strategies and policies addressing these trends from business perspective. As regards the work and business environment, the business relevance of the globalisation related trends and developments mentioned is – in terms of Porter - in the changing attractiveness of existing markets on the one hand, and in the changing competitive position of companies on the other. Additionally, the determinants of national competitive advantage are changing as well. This has implications for global strategy to create competitive advantage in global markets.

⁵ Most experts appear to agree that the actual relevance of offshoring for over-all labour market trends is minor (e.g. Van Welsum). More important are structural effects, e.g. on skill requirements. Couto, Mani, Lewin, Peeters (2006) conclude that offshoring high-skilled functions does not replace jobs onshore. The key driver of globalisation of work in high-skilled jobs is the need to fill critical talent gaps rather than to replace existing jobs in the home country.

Market attractiveness from the point of view of players in their current markets is changing because of the entry threat of low-cost, disruptive business model providers pushing down margins, and because of the new products and services that could substitute existing products and services. We see that in markets now entered by the “challengers” from emerging economies, in various industries such as IT products, steel, construction.

The changing structure and attractiveness of increasingly global markets requires additional sources of competitive strength. As Porter (1990) puts it, the key dimensions of global strategy are global configuration and global coordination. Configuration involves the location of business activities. Coordination is on managing these dispersed activities.

Another requirement is to cope with the low-cost nature and disruptive business models of the new entrants from emerging economies, and to cope with the demand for critical skills and competences. Here we see that it is no longer offshoring and relocation which poses challenges. Additionally, these entrants are increasingly acquiring high-quality competences (e.g. in software, electronics, telecommunications, consumer products) and high-level education.

National circumstances are changing as well. Policies regarding IPR probably are more favourable in emerging economies. Emerging markets in China and India demonstrate a high potential for growth, and EU research and innovation activities are increasingly following the attractiveness of these emerging markets (EU examples include Nokia and SAP). Additionally China has a huge potential in terms of qualified human resources and one of the factors determining competition and relocation of multi-national companies certainly is the availability of talent. Technological infrastructure and capability for innovation is improving as well. In all this means that emerging economies are moving up the value chain as well.

Given these changes in the competitive environment of firms induced by globalisation, an important area of policies to ensure competitiveness in a global environment is to increase the capability for global collaboration. This is not a policy domain in itself but rather lies at the basis for other policies. OECD (2007) identifies a number of such relevant policy areas such as innovation policies, policies to upgrade the human resource base, policies to foster entrepreneurship and cluster policies.

2.3 Globalisation and employment

A specific issue to look at in the context of globalisation and business collaboration are human resources. Table 2 summarizes trends, business relevance and policies regarding employment in the context of globalisation. A qualified workforce and availability of high-level competences are critical in doing business. Several developments are going on regarding employment and jobs. First, international sourcing (offshoring) affects employment and jobs, but direct impacts seem to be limited. Second, strategies to cope with these impacts on employment and job structure are related to changing demands for skills and competences and increasing the labour flexibility in the work organisation.

The study on Restructuring and Employment in the EU (Storrie and Ward, 2007) addresses the impacts of globalisation on labour markets and employment, and considers three types of policy responses: policies to mitigate negative effects of globalisation; active labour market policies targeting displaced workers; and policies strengthening social partnerships. The study concludes that jobs lost to offshoring seem to constitute only a small proportion of all jobs lost. In general, there is very little empirical evidence on direct employment consequences of globalisation. See also the European Foundation report “Recent Restructuring Trends in the EU” (Irastorza, Storrie 2007) and several OECD studies (van Welsum and Vickery 2005, Van Welsum and Reif 2006a, 2006b).

Table 2: Globalisation of occupations: trends, business relevance, policies

Trends and developments	Business relevance	Policies / strategies
Globalisation affects employment / jobs	Offshoring of service and manufacturing jobs	Skill upgrading policies, vocational training programs
Increase of ICT-enabled trade in services	Demand for skills	Stimulating flexible working arrangements, "flexicurity"
Emerging economies are moving up the value chain	Need for increasing flexibility in work organisation	Active labour market policies targeting displaced workers
Signs that emerging economies relocate service activities to the EU		Social partnerships

However, there are several related developments going on that potentially could have a high impact on jobs. The Restructuring and Employment study discusses current trends and developments in globalisation in particular related to employment and occupations, such as the increase of ICT-enabled trade in services that can be codified and transmitted digitally, which opens the potential for an even finer degree of specialisation in the supply chain and thus international trade, not in final products but in functions and tasks within the firm. As service sectors make up for about 70 % of employment this could have considerable implications for labour market adjustments.

Even if it is difficult to quantify the service jobs at risk (See Van Welsum and Vickery, 2006) this situation is even more important to address as emerging economies are increasingly competing successfully in high-tech activities in which Europe still has a competitive advantage. They are moving up the value chain and increasing productivity even in the high-tech sectors (see also OECD, 2007, about the process of moving up the value chain, and Dorfs, 2007 about the strategies of new "challengers" such as Mittal, Tata, Wipro, Acer, Cemex, Lenovo to mention only a few).

On the other hand there is a trend of Indian companies who, in moving up the value chain and targeting more profitable market segments, decide to relocate some of their activities to the EU. This seems to be important especially in services. Examples are Indian outsourcing companies such as Tata Consultancy Services, Infosys and Wipro. These companies have decided to move closer to their client companies in the EU, especially in the Netherlands, Belgium and Luxemburg. The argument is the importance of efficient and effective communication and collaboration with their clients, requiring skills in language and understanding. It seems the world is not as flat as Friedman stated.

Employment strategy is among the policy objectives responding to globalisation formulated by the EU Strategy for Growth and Jobs. As a response to globalisation and demographics, the Commission is taking initiative to look at flexibility and security in the labour market. Globalisation is seen as overall beneficial for growth and jobs, but the changes it brings require rapid responses from enterprises and workers. The "flexicurity" concept aims to combine flexible labour markets and flexible work organisation, high level of employment and income security (European Commission communication, 27 June 2007). The concept has emerged from the awareness that globalisation and technological progress are rapidly changing the needs of workers and enterprises. Continuous adaptation of production methods and labour

deployment patterns is necessary, which places high demands also on business to help workers acquire new skills and competences.

Aspects of the flexicurity concept are being covered by the European Foundation study on Restructuring and Employment in the EU (Storrie and Ward, 2007). As regards the future work environment and policy framework, the Employment and Restructuring report mainly looks into possibilities to upgrade vocational education and training (upskilling). Aspects of the Danish flexicurity model are presented, permitting the labour market to adjust to foreign competition and providing those who lose the opportunities to stay involved in the labour market. This is related to the study's overall recommendation to ensure that Europe remains ahead in innovation, which corresponds to the Lisbon strategy of the EU.

The general situation in SMEs as regards working conditions, comparing different countries, is being covered in the report on "Industrial relations in the EU, Japan, US and other global economies, 2005-2006.

2.4 Globalisation, skills and competences

An important area of policy is qualification and competences. Most accounts of the impacts of ICT-driven offshoring and global collaboration come to the conclusion that high-qualified workers are likely to benefit from globalisation, while workers with low skills will lose out, i.e. have to upskill or face unemployment.

With respect to the capability of global collaboration, it is expected a growing need for networking skills (IDC study, Kolding and Kroa, 2005). The lack of such capability could potentially hold back Europe's competitiveness in the global market. From the viewpoint of the topic of the present study, technical networking competences are required to implement, maintain and develop the infrastructure over which virtual collaboration takes place. But arguably, the more important impact on competence requirements comes from the non-technical aspects of collaboration if this is to stretch across boundaries of firms, locations, countries, cultures, and so forth. The competences needed here relate to what Levy and Murnane (2004) call complex communication, which included interacting with humans to acquire information, to explain it, or to persuade others of its implications for action.

At a more generic level, Castells (2001, p. 91) summarises that the most important objectives of the learning process must become "first, learning how to learn, since most specific information is likely to become obsolete in a few years [...]; secondly, having the ability to transform the information obtained from the learning process into specific [operationally valuable] knowledge". In this context, and with regard to the labour process, he speaks of the need for "self-programmable labour".

From this it becomes clear that neither an exclusive focus on IT professionals, nor an emphasis on "digital literacy" in its narrow definition, i.e. knowing how to use a computer and the Internet, are sufficient to prepare Europe for the future knowledge-based economy and society. Realising the need for a paradigmatic shift in the provision of learning, the European Commission has defined, within its proposal for Key Competences for Lifelong Learning, the term digital competence in a broad way:

Digital competence requires a sound understanding and knowledge of the nature, role and opportunities of IST in everyday contexts: in personal and social life as well as at work. This includes main computer applications such as word processing, spreadsheets, databases, information storage and management, and an understanding of the opportunities of Internet and communication via electronic media (e-mail, network tools) for leisure, information sharing and collaborative networking, learning and research. Individuals should also understand how IST can support creativity and innovation, and be aware of issues around the validity and reliability of information available and the ethical principles of in the interactive use of IST.

Skills needed include: the ability to search, collect and process information and use it in a critical and systematic way, assessing relevance and distinguishing real from virtual while recognising the links. Individuals should have skills to use tools to produce, present and understand complex information and the ability to access, search and use internet-based services; they should also be able use IST to support critical thinking, creativity, and innovation. Use of IST requires a critical and reflective attitude towards available information and a responsible use of the interactive media; an interest in engaging in communities and networks for cultural, social and/or professional purposes also supports competence.

For the conceptualisation of the different kind of skills which make up digital competence, the categorisation suggested by Steyaert and further developed by van Dijk (2005) is of particular value. They differentiate between operational (instrumental) skills, informational (structural) skills and strategic skills:

- Operational skills are needed to operate ICTs, i.e. computers, software, Internet connections, and mobile devices.
- Information skills are required to search, select and process information from computer and network files, which implies the ability to structure information according to specific requirements and preferences.
- Strategic skills denote the ability to take own initiative in searching, selecting, integrating, valuing, and applying information from various sources as strategic means to improve one's position in society. It often implies the continuous scanning of the environment for information, which might be relevant to the four spheres of life: personal life, family life, work life, and community life.

It is important to take into account that digital literacy is by no means limited to the utilisation of the Internet. Any definition and operationalisation of digital literacy needs to include the full spectrum of current and future ICTs, which include mobile applications and services which are expected to become much more dominant in the coming years. More generally, any definition of digital literacy must be open to new technological and market developments which will become relevant in the future. Against this background, it may make sense to define as the focus of digital literacy any *ICT-enabled means with which to access, manage, integrate, or evaluate information, construct new knowledge, or communicate with others.*

The digital literacy competences outlined above refer in many ways to types of generic competences which are in demand on today's labour markets. Felstead, Gallie and Green (2002), through an in-depth analysis of the UK Work Skills Surveys, identified ten categories of generic skills and how these can be operationalised. In Table 3 the relevance of each of these ten skill categories for computer-mediated communication and interaction is discussed in brief.

Table 3: Skills categories relevant for global collaboration

Skills category	Description	Relevance for CWEs
Literacy skills	Both reading and writing forms, notices, memos, signs, letters, short and long documents etc.	Mainly of relevance in the context of written communication through electronic channels (see below)
Physical skills	The use of physical strength and/or stamina	Low relevance
Number skills	Adding, subtracting, divisions, decimal point or fraction, calculations etc., and/or more advanced maths or statistical procedures	Increasing importance for interpreting and processing computer-generated information (Levy & Murnane, 2004, pp. 103-105)
Technical 'Know-How'	Knowing how to use tools or equipment or machinery, knowing about products and services, specialist knowledge and/or skill in using one's hands.	Computer-related skills ("digital skills") are of prime relevance for CWEs. The degree to which specialist know-how is needed is, of course, dependent on whether and how the supply-side will make progress in usability.
High-level communication	Top-down communication skills, including persuading or influencing others, instructing, training or teaching people, making speeches or presentations and writing long reports. This skill is also linked to the importance of analysing complex problems in depth.	Some relevance as CWEs and virtual teamwork will mean that a higher share of workers will be carrying out management tasks.
Client communication	Selling a product or service, counselling or caring for customers or clients.	No specific relevance
Horizontal communication	Working with a team of people, listening carefully to colleagues.	Very high relevance and interrelation with "technical know-how"
Planning	Planning activities, organising one's own time and thinking ahead.	Very high relevance (self-management)
Problem-solving	Detecting, diagnosing, analysing and resolving problems	High relevance for work in virtual teams as responsibility is distributed more evenly across workers.
Checking skills	Noticing and checking for errors.	High relevance for work in virtual teams as responsibility is distributed more evenly across workers.

Source: Based on Felstead et al. (2002, p. 34) and Gareis (2006)

To summarise, as far as readiness indicators for uptake of CWEs are concerned, four categories of competences are of most importance: digital competences, communication and collaboration competences, self-management competences and problem identification and problem solving competences.

2.5 Conclusions

So far we have looked into different trends and developments regarding globalisation, in particular related to trade, employment and skills, that are shaping the business environment. These trends are affecting the attractiveness of markets, and the national determinants of competitive advantage. As such they reshape the playing field for global competition. Work is being moved to where local conditions are best, including low cost but increasingly availability of talent. An increasingly important factor is the capability for global sourcing of human resources and capability to manage a global workforce.

3 Globalisation challenges for business

3.1 Business strategies and global networks for work organisation

Globalisation of markets and industries is often seen as threat to existing industries as new competition arises from emerging economies. Smaller suppliers in existing supply chains can be replaced by cheaper and more flexible suppliers from elsewhere. On the somewhat longer term even large companies are affected, as newcomers from emerging economies such as India and China have already shown to be able to use disruptive business models. However, globalisation also provides important new incentives and challenges for European business: to find new talent and workforce, to become more innovative, and to collaborate with other companies, worldwide, in global value networks. Of course this also requires new competencies, skills and strategies, both for SMEs and larger companies.

As such, the process of globalisation of markets and industries, which is dynamic and ongoing, characterises the environment in which businesses compete, collaborate and create value. Globalisation forces shape the business environment unequally, as industries, markets and locations exhibit different characteristics and are affected unequally by these forces of globalisation. This is the dynamic and ever changing environment in which competitive advantages emerge and enterprise strategies are being developed and validated.

From the perspective of business strategy, Michael Porter⁶ has described industry globalisation as the process of internationalisation of production and competition. In his view, key factors driving the globalisation of industries are shifts in technology, buyer needs, government policies and country infrastructures. Such shifts create major differences in competitive position among firms from different nations and might make the advantages of a global strategy more significant. In Porters' view firms must respond strategically to such changes; global strategies, addressing competitive advantage in global markets, combine advantages at the home base – Porter stresses very strongly the importance of the local home base - with advantages resulting from presence in many nations, such as the exploitation of economies of scale and brand reputation.

Establishing strategic alliances, global supply chains, global value networks and associated forms of collaboration is definitely a part of such strategy. Porter stresses the role of alliances in global strategy. International alliances divide the activities in a value chain on a worldwide basis with a partner. Companies entering such alliances are gaining benefits such as economies of scale (e.g. marketing activities, production or assembly), creating access to local markets, and to hedge risks (e.g. in diversification of research activities). Porter considers mainly long-term agreements between firms in the form of joint ventures, licenses, long-term supply agreements.

However, a strong trend can be witnessed towards short-term, ad-hoc and temporary business collaboration networks for work organisation. Enabled by new ICTs and new principles for organising and managing, new decentralised, flexible, adaptive forms of collaborative networked organisations are emerging⁷. Examples include the “e-lance” economy type of working described by Malone (2004), the work in professional networks and communities such as found in software development (Yan and Assimakopoulos, 2005), the new forms of open innovation governed by business models (Chesbrough, 2006), and the loosely con-

⁶ M. Porter, *On Competition* (2000), *The Competitive Advantage of Nations* (1990). See also: *Competition in Global Industries* (1986).

⁷ See Malone's study on 21st Century organisations (2003) and on the future of work (2004).

nected “creation nets” (Seeley Brown, Hagel, 2006) which combine aspects of supply chains and communities on global scale. The term “value network” or “business web” (Tapscott, Ticoll, Lowy, 2000) provides a generalisation of such networked work organisations and stresses the decomposition and reconfiguration of traditional supply chains and the new forms of less hierarchical, more informally and trust based coordination and management principles and associated business models.

3.2 The role of collaborative work environments in global collaboration

Web-based systems have increasingly become a critical enabler of such business strategies and organisational forms. They enable global collaboration in networks through diminishing the costs of communication and interaction to benefit from interconnection with valuable distributed sources of people, knowledge and information. As many publications stress, the challenge for European business including SMEs is to stay ahead in creating competitive advantage in a situation where emerging economies are also moving upwards the value chain⁸. The capability to collaborate on global scale could be an important requirement to achieve that goal. Increasingly, collaboration is considered as a key driver of business performance⁹.

Although we focus on collaboration between people, it should be distinguished forms of global collaboration on different levels. One level is business process collaboration in global supply chains. Information systems of different units or companies work together, based on established rules, to coordinate activities such ordering, production management, logistics and supply. Another level is collaboration of people, across companies and locations, in globally operating teams. For example in activities such as negotiations, work coordination, research and innovation, which are requiring people interaction and mutual understanding. Global collaboration may include collaboration within a (multi-location) company and collaboration across companies, even in a globally distributed value network of many companies.

Collaborative working environments can be understood as combinations of physical, IT-based and social or organisational infrastructures supporting people in their work. Digital CWEs include community and team-oriented shared workspaces and Web 2.0 technologies such as wiki's, blogs, web conferencing and presence-based communication tools allowing working together and social networking on a distance, even across multiple time zones. Such CWEs focus on people collaboration and are complementary to collaborative business systems, which allow business processes of multiple companies organised in supply chains or networks to cooperate.

Virtual organisations could integrate such platforms and tools into networked organisational settings allowing a lifecycle of initiation, operation, maintaining and dissolving of networked organisations. This is a relatively new and potentially important development for implementing global collaboration. Much work has been done on technical, legal and organizational infrastructures¹⁰. However there is a need for concrete applications and validation.

⁸ European Foundation for the Improvement of Living and Working Conditions, ERM Report 2007. See also OECD Policy Brief “Moving Up the (Global) Value Chain, July 2007.

⁹ Gofus et al, “Meetings around the world”. Frost & Sullivan, 2006. The report is based on an on-line survey with 946 decision makers in key positions as line manager or in the IT department.

¹⁰ E.g. ECOLEAD project in FP6. See: L.M. Camarinha-Matos and H. Afsarmanesh, “Collaborative Networks and Their Breeding Environments” (2005)

Clearly, ICTs fall in the category of enablers of global collaboration. The primary success factor of business performance is not collaborative technology but collaboration capability, work practices and a supportive culture. This demonstrates the need for more emphasis on social, organisational, human and cultural issues in order to understand better how to increase the impact of collaboration on value creation.

3.3 Globalisation and work organisation: towards the agile workplace

Modernisation of work organisation has been a topic for study since long, but innovations in the area have often proven to be difficult to achieve in practice. Workplace innovation and, in particular, flexible working have also met with considerable attention in European policy since the 1997 Green Paper on “Partnership for a New Organisation of Work”, the 2000 Lisbon summit focusing on creating a knowledge-based economy, and the 2002 Roskilde EU presidency conference on “New Forms of Work Organisation”. However, it has attracted less interest during the last five years. Now when the challenges of globalisation on work organisation are becoming more clear, it could gain in importance and interest again. The main challenge still is to create real value and real innovation and change in the workplace, and to cope with the many obstacles – human, organisational, societal and technological – through learning and experimentation (Totterdill, Dhondt and Milsome, 2002). Challenges that seem still of relevance today are:

- At individual level, seeking opportunities to acquire and develop the technical and non-technical skills and competences associated with new forms of work organisation;
- For employers and employees – accepting that change is inevitable, messy and uncertain, and that it requires considerable learning and experimentation. However it offers real scope for win-win outcomes;
- For trade unions and employers organisations – broadening their roles as pro-active, knowledge-rich sources of animation and support for the modernisation of work organisation;
- For intermediate bodies – universities, regional development agencies and business support organisations – creating capacity and expertise in the field of work organisation and playing a pro-active role in distributing knowledge, establishing new resources and building networks;
- At the EU level, policy makers and social partners need to understand the nature of workplace innovation and its implications for economic and social goals, and need to animate activities at the national level. This suggests the need for several policy priorities such as increasing awareness and concern among policy makers and social partners in member states, building capacity for learning and experimentation, identifying fast-track strategies to support the modernisation of work in new member states.

Workplace innovation is not a matter of technology alone. Among the key issues are workplace organisation, regulations, cross-organisational cooperation, management and leadership, organisational structure, and incentive schemes. Introduction of new work practices and ICTs should go hand in hand. Although there have not been that many empirical studies in measuring the impact of collaborative working environments on workplace performance, there is evidence that innovations in collaborative working may contribute to the creation of value, increasing productivity and improving the quality of work. In one of the scarce empirical studies, measured over a period during the 1990s, it appears that ICT-related workplace innovations including re-engineering, teamwork and worker participation account for 30 % of output growth in manufacturing, and 89 % of multi-factor productivity (Black and Lynch, 2005). Given

the productivity gap between Europe and the US in exploiting ICTs it definitely constitutes a challenge for Europe to develop innovative workplace concepts to enhance productivity and creativity.

Recent research has now started to shed more light on the relationship between increasing job demands (work intensity), job autonomy (participation in decision-making about one's work) and new forms of work organisation. The latest study of Antila (2005) looked at the effect of "pro-active work organisation" (Antila & Ylöstalo, 1999) on job satisfaction, as expressed by the workers affected. One of his intentions was to explore whether a high degree of job demands can nevertheless be compatible with high job satisfaction. Indeed, Antila found that jobs which combine strong job demands, e.g. in terms of individual responsibility and work intruding leisure time, with a high level of worker control over the job (autonomy) are associated with above average rates of job satisfaction. A similar result was established in a large-scale survey on working life in Norway (Rønning, 2002).

3.4 Gaps in knowledge

Very little systematic evidence is available as yet about the benefits which companies, workers and other stakeholders can derive from virtual collaboration that stretches across the borders of countries and even continents. Academic research has focused mainly on case studies into the experience of companies which are leading innovators, and as such not representative of overall developments. Most media attention, meanwhile, has focused on the phenomenon of off-shoring of manufacturing jobs and routine knowledge work. Recent studies have also highlighted the possibility that knowledge-intensive, high quality jobs such as in R&D may also "move" to offshore locations such as India and China. In sum, reports such as these give the impression that globalisation is a zero-sum game, where a country can only gain if other loses out at the same time, and companies are engaged in a struggle for life where only the most powerful multi-national players will survive. This impression does not properly reflect the real experience of globalisation in recent decades.

The New Global project team feels that a focus on cross-country virtual collaboration, rather than on ICT-enabled "relocation" of jobs, should be better capable of highlighting the processes and structures through which globalisation can benefit all parties concerned – including European SMEs.

The research of AnnaLee Saxenian (2006) is of prime interest in this regard. Saxenian has for many years researched the labour market of Silicon Valley in order to better understand the workings of the kind of flexible labour markets, which underlie certain regions' success in terms of innovative activity and growth. In recent years she turned her attention, in particular, to the region's stock of high-skilled, foreign-born overwhelmingly Asian workforce. While the dominant belief has been that there is a risk of brain drain once foreign-born but US-educated highly qualified workers re-establish connections to their home countries, Saxenian has produced a rich body of evidence suggesting that both the Silicon Valley region as well as the native countries of these engineers benefit from the collaboration networks which are developing in the course of this process. Cross-continent collaboration is not leading to brain drain, but to what Saxenian terms "brain circulation", increasing levels of innovative activity and entrepreneur-based growth in both parts of the world. With regard to organisational change, Saxenian notices the following:

The nature of the firm is being redefined through this process as start-ups and investors as well as established enterprises move across geographies and open their boundaries in new and different ways. The corporate hierarchies and vertical integration of the twentieth-century mass production corporation are being replaced by horizontal networked organizations that flexibly recombine resources by drawing on the specialized and complementary capabilities of producers located in distant regions. This often involves extensive information exchange and collaboration between customers and suppliers who are located at great distances. This suggests that the region and its distinctive capabilities and resources, rather than the firm, are increasingly defining the contours of the global production. (Saxenian, 2005)

Translated to the situation in the European Community, the evidence produced by Saxenian suggests that by fostering cross-country collaboration in flexible and human-centric manners, Europe can benefit from the forces of globalisation by combining the specific locational advantages of Europe and the competence base of the European workforce with those of other labour markets around the world. It goes without saying that this process brings with it a number of challenges which put much pressure on Europe's ability to transform itself. The concept of global, new collaborative working environments, as defined by the European Commission and used for the present study, presents ways of how to deal with these challenges. It also provides valuable insights into the kinds of political measures which will be necessary for fostering stronger cross-country collaboration, as well as for pro-active policy-making aiming at maintaining and further developing the European Social Model.

The findings of research until now let us assume that only through improvements in the set-up and management of collaborative work processes will it be possible to achieve self-sustaining increases in the competitiveness of the EU economy. Unless work processes and value chains that cross national borders are well managed, the risk is high that losses will occur. Indeed, as opposed to the common perception that globalisation of production is a logical result of the pursuit of easy profits by companies, the most successful global companies are the ones that consider global production systems mainly as a means to increase their ability to innovate and to respond to market changes. Global collaboration opens up totally new possibilities in this respect. What is more, this type of globalisation may actually benefit source countries by creating new, high-quality employment rather than destroying jobs. This will not happen, though, without policy-making taking an active role in fostering innovation and in supporting Europeans to adapt to the changing global marketplace while preserving the achievements of the European Social System.

3.5 Policy challenges

Because of globalisation's prominent role among the general challenges facing national economic policy in the present day, an analysis of the different ways in which the main stakeholders try to cope with the implications (today's or expected for the future) of globalisation is much beyond the scope of the present study. It is clear that policy action will be needed in a large number of policy areas. In the area of skills, competences and education, key challenges include more effective policies for tackling competence shortages and mismatches, better preparation of school and university students for a world of work in which the ability for effective collaboration is a key requirement, and support of geographical labour mobility. With regard to regional development and cohesion policy, there is clear demand for policies which effectively increase the absorptive capacity of regions and cities in order to enable them to fully exploit knowledge, which is being transmitted through inter-regional and cross-border collaboration (Karlsson, 2006, p. 29). Europe's SMEs – which employ the large majority of the EU labour force – may need policy support to improve their adaptability and innovative-

ness, for both of which extensive collaboration with local as well as distant partner organisations is of prime importance.

Policy action for health, well-being and support of the family should look into measures which make it more attractive for employers to offer forms of work which provide a good balance between work and family. Moreover, awareness of longer-term health effects of different types of work should be strengthened in order to enable workers to take better care of their long-term mental well-being and overall health. With respect to work-family balance, initiatives which effectively boost rates of employment among women are of special relevance. Environmental and transport policy needs to make progress so that the externalities of work-related resource consumption and CO₂ production become fully internalised in the price mechanism.

This is a far from complete description of the need for policy action. What has become clear is the size of the challenge in relation to implementation of ICT-based, global forms of collaborative work. The NewGlobal study intends to contribute to policy-making by providing well-tailored knowledge about the potential of CWEs for European companies as well as the barriers, facilitators and critical success factors which need to be taken into account.

The patchy evidence, which is available on the current and likely future impacts of developments related to cross-border virtual collaboration, presented in this chapter, indicates the need for more research into how to gain the benefits and avoid the drawbacks from globalised collaboration and from ICT-tools for virtual collaboration. The main gaps in knowledge appear to be the following:

- The relative elusiveness of inter-organisational collaboration – in particular if these are of a rather informal nature and not reflected in trade statistics or legal agreements – means that it has tended to escape the interest of mainstream research and especially of official statistics. If such collaboration is of vital importance for the competitiveness of the EU economy – and there is a wealth of insight, which suggests just that – then representation of collaborative activities within research and statistics needs to be improved considerably.
- In recent years, a body of research has been produced on the issue of ICT-based collaboration, originally using the term “computer supported collaborative work” (CSCW). While much of this research is highly relevant for the topic of NewGlobal, insufficient attention has been paid to aspects, which are specific for global collaboration, such as the spanning of cultural, temporal and organisational boundaries at a global scale.
- To what extent are there national differences in the degree to which SMEs in EU countries exploit the potential for international collaboration? Are these differences purely due to different sizes of the home markets, or do significant variations persist once this factor is controlled for? If the latter is the case, can we identify good practice in policy action at national or regional level, which could be utilised by other member states to improve their SMEs capability to “go global”?
- While global collaboration is bound to bring with it a large number of challenges, what are the critical success factors, which differentiate poor from good performers?
- To what extent are technical, financial, knowledge-related and attitudinal factors responsible for the (presumably) large number of firms that do not intend to collaborate globally?
- Are the collaboration technologies used by European firms perceived as effectively supporting (a) highly collaborative work and (b) collaboration across cultural, geographical, organisational and temporal borders? Which are the most significant deficits?

- Which are the competences that are of particular importance to global collaboration, to what extent are they present in today's workforces in the EU, and what needs to be done to improve competences supply if shortages are existing?
- While multi-national enterprises make extensive use of CWEs and are currently engaged in a process of trial-and-error to identify the best way to set up and manage global collaboration activities, SMEs which by their very nature tend to be more bound to their immediate environment (region, country) are lagging behind. Very little is known about the conditions under which SMEs are capable to engage in intensive global collaboration, and the critical success factors for doing so.
- In this respect, the exact need for policy support to SMEs and how this should look like is also largely unknown territory.
- There is still a high degree of uncertainty and disagreement about the health and well-being effects of work intensification – as it is typical for types of work organization, which make heavy use of ICTs for increasing work productivity and collaborative activities. As has been reported in this chapter, the concept of pro-active work goes some way towards addressing the assumed contradictions in previous research findings. Findings until now are still tentative and need to put on a stronger empirical basis, also allowing for cultural differences between types of workers, sectors, countries, etc. More research is necessary, as well, to identify the long-term consequences of pro-active work organisation.
- Whereas traditional models for internationalisation of firms assume a step-by-step process, the Internet together with other ICTs have opened up totally new possibilities for establishing a global enterprise from scratch. This relates to the phenomenon of “born globals” the number of which has been growing explosively in recent years in Europe, although still at a very low level. To what extent can the “born global” model be considered as a model for self-sustaining entrepreneurial activity in the knowledge economy, and what do EU policy-makers need to do to exploit this potential?

On a different level than the above, a key challenge is posed by the fact that ICT-enabled global collaboration, and the restructuring of business activities which go hand in hand with it, are in the public debate mainly discussed as a threat to jobs in Europe. Much of the evidence which is available suggests that this is not a fair representation of reality. What do policy-makers need to do to better “spread the message” that globalisation, if properly managed, offers a wealth of opportunities for economic and social progress

4 Globalisation and global collaborative working

4.1 Assessment of globalisation impacts

Globalisation of markets and industries is an ongoing dynamic and interactive transition process¹¹; underlying forces such as technological innovations, combined with policies and strategies of governments and companies are changing the globalisation landscape continuously. In looking at how globalisation affects the way companies are operating, our focus is on how the forces underlying globalisation, i.e. technological innovation and global competition, impact on the use of collaborative practices in business operations. The term “globalisation” in this study is used in relation to work and business organisation, as we study the phenomenon of “globalised work and business environments”.

Concerning the impacts of globalisation on business operations and business opportunities, we cover three levels of analysis emphasizing in particular the second and third:

- Societal level: government policies related to technology infrastructure, competition, labour flexibility, market liberalisation as well as impact on employment issues, relocation patterns, cultural and behavioural issues
- Enterprise level: industrial and geographical settings in which companies operate, business organisation including intra-company organisation, inter-company business networks, informal cross-organisational communities, and extra-company organisation e.g. forms of open innovation governed by business models
- Workplace level: work organisation, organisational and cultural aspects of collaboration, collaborative workplace environments, including forms of inter-company virtual teams.

4.2 Societal level impacts

The societal level of globalisation and implications for business and working environments was discussed in Chapter 2. In this study the societal level will be considered from the perspective of its role as source of regulations that impact on globalisation processes and influence patterns of global collaboration¹². Stakeholder at this level is society at large (the public domain).

The incomplete evidence which is available on the current and likely future impacts of developments related to cross-border virtual collaboration, indicates the need for more research into how to gain the benefits and avoid the drawbacks from globalised production systems and from ICT-tools for virtual collaboration. The findings of research until now let us assume that only through improvements in the set-up and management of collaborative work processes will it be possible to achieve self-sustaining increases in the competitiveness of the EU economy. Unless work processes and value chains that cross national borders are well managed, the risk is high that losses will occur. Indeed, as opposed to the common perception that globalisation of production is a logical result of the pursuit of easy profits by companies, the most successful global companies are the ones that consider global production systems mainly as a means to increase their ability to innovate and to

¹¹ It could be fruitful to look into the literature of transition management in order to describe and explain globalisation in terms of transitions governed by “regimes”. See: R. Kemp, J. Rotmans, *Transitions Towards Sustainability* (2004).

¹² Of course, the societal level is influenced in turn by developments at business and industry level. In *New Global* we see that as important context but focus on enterprise and workplace level.

respond to market changes. Global collaboration opens up totally new possibilities in this respect. What is more, this type of globalisation may actually benefit source countries by creating new, high-quality employment rather than destroying jobs. This will not happen, though, without policy-making taking an active role in fostering innovation and in supporting Europeans to adapt to the changing global marketplace while preserving the achievements of the European Social System.

4.3 Business level impacts

In Chapter 3 several aspects of globalised working environments related to inter-company business and innovation networks were covered, focusing on collaboration through inter-company networks and supply chains, and on communities of practice.

- Inter-company value networks and supply chains represent the formal and process-oriented aspects of collaborative business. The key drivers of the trend towards global business networks at this level are technological innovation and cost. They are typically part of market-seeking and efficiency-seeking globalisation.
- Innovation networks can either be supplier-side or customer-side open innovation networks. Innovation networks are the main coping mechanism used in the context of resource-asset-seeking globalisation strategies and are the main approach to access and internalise global knowledge.
- Inter-company communities of practice focus on more informal and loose forms of collaboration dedicated to the exchange of knowledge and information and solving problems. Many organizations have established CoPs as a coping mechanism in order to develop and exchange common concepts, practices and systems across organizational and geographical boundaries. However, the success of new working environments is highly dependent on the alignment of the broader socio-cultural context with differences of individual members – that is, opportunities of Communities of Practice lie in creating and maintaining an understanding that communities differ from more traditional structures within the organization in terms of flexibility and informality, and on an awareness that employees partaking in such communities thus need to be managed in a more loose way in order to make community-related activities beneficial to the organization as a whole.

4.4 Workplace level impacts: teamwork and virtual working

The level of teamwork and virtual workplaces was covered in Chapter 3 as well. The main driving forces are the access to local markets and talents and technology enabling collaboration. In globalised working environments functions are distributed and group task shared to a group of employees working dispersed across multiple locations. At the organizational level, this results in growing numbers of distributed teams and projects, and the need for developing effective work and management practices to participate and lead them, respectively. The globalization of the companies' design and operative actions implies changes in work requirements of their groups and projects as they communicate and collaborate across geographical and organizational borders and often across time zones. An extreme situation is when collaboration takes place electronically in a fully virtual mode that is without face to face interaction. Though globalization does not necessary – and in fact very seldom it does – imply missing physical face-to-face interaction, the full virtuality as an extreme end provides a viewpoint to study and understand the changing requirements of global working.

The needs and practices of collaborating on team level across geographic and cultural boundaries are only faintly acknowledged. There are severe lacks in existing knowledge, for example concerning the influence of physical mobility, which is often related to global working, and crossing time zones among of global workforce. Task complexity and the spanning of geographical boundaries are closely related to the extent to which rich and quick communication channels for large volumes of information are required. This observation is important because the globalised workforce is not only geographically and culturally dispersed but is also spanning organizational boundaries and often involved in multiple tasks in multiple projects simultaneously. Collaboration technology seems not to be able yet to replace face-to-face communication. However, it is shown that employees can learn new skills and competences to patch the deficiencies of available technologies and adapt to new working environments. The diversity of employees, for example differences in the cultural backgrounds lead to co-ordination difficulties and create obstacles to effective communication. Some individual characteristics and learning can compensate for such differences to some degree. In all, enhancing intra-group processes like socialization, social communication, shared understanding, building trust and psychologically safe climate and fostering learning can reduce the negative impacts of task and environmental complexities.

What comes to the performance of global virtual teams, it seems that though there are not big differences in the quality of decisions, making them is slower than in conventional teams. Studies, however, show that global virtual teams can be creative though geographical dispersion, dependence on electronic media, cultural differences and multi-tasking are negatively related to turn creativity into innovations. There are, however, means and practices to increase productivity. Until now they are more or less patchy covering only parts of the needed ones. What comes to well-being of employees, the studies show mixed results.

5 Towards a typology of strategies for global collaboration

This section takes a preliminary look (in waiting for results of survey and case studies) into the opportunities which global networking opens up for market players to pro-actively exploit new “windows of opportunity”. It outlines typical globalisation strategies of companies leveraging on collaboration and NWE’s, and addresses policy issues to foster EU company strategies.

In general we can distinguish strategies for global collaboration on two levels:

- Strategies on the *generic level* related to the general strategic approach on company level towards globalisation threats and opportunities
- Strategies on the *specific level* related to the more operationally implemented strategies regarding global collaboration environments.

The two levels of strategies are interrelated - the strategy on the generic level sets the frame for strategies on operational level of global collaborative working environments..

5.1 Strategies on generic level

For the analysis of globalisation activities by businesses, it is vital to take account of the main motive(s) for strategies of globalisation. We observed that a common distinction made by researchers is between market-seeking, resource-asset-seeking and efficiency-seeking globalisation (Dunning, 1993). As a result we have seen that three main routes to business globalisation can be distinguished (OECD 2004, p. 66):

- international trade (either of final products or of intermediate goods and services inputs),
- foreign direct investment (FDI), which can take the form of greenfield investments or mergers and acquisitions (M&A),
- various kinds of alliances, collaboration, co-operation and outsourcing.

While our core interest is in the third type, ICT-based collaboration also plays an important role in FDI and, to a lesser extent, in international trade. This is because progress in telecommunications and transport systems have enabled a continuous increase in the extent to which business activities are interconnected and intertwined at a global scale, requiring bigger efforts to manage business processes and work collaboration across different locations, countries, continents and cultures.

It should be taken into account that strategies focusing on global working environments are often connected with strategies focusing on re-structuring the value network and outsourcing. Global work environments often address the issue of coordination and management of operational business activities carried out in the global value network, today at client site, near-site, and offshore. An example is the management of design and engineering activities in the Airbus value network, where there are hundreds of suppliers. On the other hand, more and more global working is also addressing functional activities, which were carried out in a co-located way in the past, i.e. on site or in a regional and domestic context; examples include research, marketing and sales, design and engineering, maintenance etc.

As discussed, a focus on cross-country collaboration, rather than on re-location of jobs, should be better capable of highlighting the processes and structures through which globalisation can benefit all parties concerned. Fostering cross-country collaboration in flexible and human-centric configurations, Europe can benefit from the forces of globalization by

combining the specific locational advantages of Europe and the competence base of the European workforce with those of other labour markets around the world. This process brings about challenges that put pressure on Europe's ability to transform itself. The concept of global, new collaborative working environments, as defined by the European Commission and used for the present study, presents ways of how to deal with these challenges.

The findings of this study so far let us assume that isolated strategies will not work, or will have temporary effects at best. Rather, it has to be looked at synergies between strategies acting at different levels (societal, business, work practices and environment). At the same time, innovations in the globalised working environments, and in particular innovations that address not only collaboration technologies but work practices as well, have not gotten yet much attention.

We now propose a typology of generic strategies for coping with globalisation through globalised working environments (Table 4). Such a typology of strategies might be based on the following criteria or dimensions:

- Based on intention we distinguish between pro-active and reactive strategies. Offensive strategies are aiming to creating new windows of opportunity or adapting to new situations of globalisation. One can think of establishing global virtual teams or communities. Defensive strategies aim to protect against globalisation threats, e.g. at societal level protective trade related regulations.
- Based on strategic approach - as first mover (initiator) or follower. The role of first mover is usually taken over by international companies, or metanational companies as some scientists call them. The dislocation of production can lead to a "production pool" that on the one hand pulls also other activities as research and development, or pulls suppliers and other partners of the initiator's network.
- From functional perspective we distinguish between strategies relating to, for example, collaboration technologies, organizational arrangements of collaboration, improving knowledge and innovation competences, regional development aspects etc.
- Concerning the level of analysis we distinguish between strategies acting at and affecting the level of society at large, level of business, and level of team workplace.

5.2 Strategies on Operational Level

Strategies on operational level include the specific approaches and best practices for creating the identified global collaboration environments. In particular we may distinguish strategies addressing global cooperation for:

- Global supply chains
- Global open innovation
- Global communities of practice
- Global virtual teams.

Such strategies reflect the particular demands of global collaboration in particular contexts. Different forms of global collaboration can be distinguished, characterized by form of relationships among companies and by nature of the work activity. Routine work will require process oriented collaboration (e.g. supply chains). Non-routine work will require more open and flexible forms of collaboration (e.g. teamwork support, communities of practice).

5.3 Summary of Strategies

At this point we have limited the analysis to discussing shortly a few coping strategies so far observed (see also Table 4):

- Communities of Practice have been created by globally operating firms to support knowledge exchange within the company. Main bottlenecks impacting their success are lack of cohesion and cultural diversity.
- In some cases we witness opening up company communities to establish more open communities e.g. in software development and in research and innovation.
- Research and innovation seems to become organized increasingly in a decentralised and global way. This causes problems of understanding and coordination. Decentralization is possible for incremental innovation and more or less autonomous project work. Centralized projects remain necessary for radical innovation and project work which has a complex, systemic, character.
- Regarding flexibilisation of the work environment, the Flexicurity strategy proposed by the European Commission aims to increase the flexibility of labor markets while preserving the achievements of the European social system.
- Creation of shared collaborative workspaces has emerged as important instrument for cross-organizational collaboration. It also could impede collaboration if not supported by organizational measures. It needs strong collaborative culture to be really successful.
- Relocation of business activities and jobs, towards more attractive markets, has been the main strategy of globally operating companies.

Table 4 Strategies overview

Level of analysis Aspect	Workplace	Business organisation	Societal
Public policy	Promoting learning	Clustering as business collaboration Increasing attractiveness of regions	Promoting the changing of public mind-sets Flexible working regulations
Technology	Collaboration tools Security technologies Trust enhancing technologies	Improve adoption and take up of technologies Global standards and standardisation Security and access protection	Raise awareness and understanding of ICT's role Global standards Secure and reliable infrastructures
Organizational	Work organization Management and working practices Work-life balance Open innovation culture Global collaboration culture	Clustering as strategy to creating business networks Standards and standardisation	Raise awareness of networked organisations
Regional	Available infrastructures to support distributed and mobile work	Clustering as increasing regions attractiveness	Innovation policies Regional clustering policies

5.4 Implications for further work

So far the New Global project has addressed the issue of how to create a more or less complete overview of strategies addressing global cooperation. A different task, of importance later in the New Global project, is to get insight in appropriateness of specific strategies in specific situations and under specific contextual conditions. We need to understand what are specific answers to specific globalisation challenges. As a first attempt we propose two key dimensions spanning a globalisation strategy matrix and position specific coping strategies in the different quadrants. The first dimension is company reach (intra- vs inter-organisational collaboration); the second dimension identifies two contradictory trends representing the impact of globalisation: concentration and dispersion. Strategies could be identified that could be considered as appropriate or successful to exploit the opportunities of globalisation in the mentioned quadrants.

Further work will address the precise impact and role of collaborative working environments as business strategy, in relation to generic policies such as those promoting flexible working, clustering and open innovation.

It should be distinguished between actual strategies observed in our case studies and survey analysis (descriptive analysis, in need of understanding why these strategies have been chosen), and normative or prescriptive strategies (in need of understanding why these strategies should be chosen in the future). In the end, we must answer the question as what are the conditions for European firms to exploit the opportunities of globalised work environments in coping with the related globalisation challenges, and how European policies could respond to create the conditions.

Actual strategies will be identified in case study analysis and survey, and so far have been identified in our state of the art literature analysis. Table 7 provides an overview of strategies that were observed so far. In order to better understand these strategies they must be related to situational characteristics and to trade-offs of stakeholders and they must be evaluated in terms of impacts, success and failure. Such analysis could then shed light on designing potentially successful strategies addressing global collaboration in the future.

As the next steps in our project, the survey study will provide more detailed knowledge about the present status quo among European companies in a number of EU Member States. The main objective of the survey is to provide indicative data about the spread of CWE and cross-country CWE, as well as elements hereof, among EU companies in sectors which are likely to be significantly affected by globalisation tendencies of high-qualified knowledge work. The data thus collected will allow the study to shed light on the current situation in the EU with regard to CWE, as well as related drivers, success factors and impacts on performance, innovative activity and quality of working life.

The case studies will provide in-depth description of different global collaborative working environments. The description will include a description of globalisation strategies at strategic-company level and on the specific team level. As well specific characteristics of global collaborative environments will be identified. The focus is particularly on key drivers, barriers, obstacles, processes, issues, technology used and contextual factors for the companies and value chains involved. In addition best practices in organising global collaboration environments will be identified.

6 References

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