

Change Processes and Future Perspectives in the Knowledge Society. The Example of Clothing and Textile Industry

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Abstract

The paper examines change processes and future perspectives in the knowledge society. It presents the clothing and textile industry as an example for a transforming industry in a global economy. The paper reviews existing future studies, which have surveyed change processes and future developments in the clothing and textile industry. Main goals of the review are the identification of changes in work and the description of the restructuring of global value chains within the clothing and textile sector. The paper also highlights major current trends, drivers of change and future prospects in this sector.

Introduction

The paper focuses on change processes and future perspectives in the knowledge society. In the first part it will outline theoretical considerations regarding restructuring processes in the knowledge society. In the second part the clothing and textile industry will be presented as an example for a transforming industry in a global economy. Current and future trends in the fields of work organisation and structure of global value chains will be identified. The paper will present results from existing foresight surveys and will ask for the relevance of these results applied to the analysis of change processes and future perspectives in the knowledge society.

Restructuring of global value chains and work in the knowledge society

The shape of contemporary society is often characterised as a knowledge society. The phrase "knowledge society" is based on the assumption that knowledge becomes the major constitutive element of modern societies (Stehr, 2001: 11). Castells recognises that a knowledge society refers to a specific form of social organisation in which the creation, processing and dissemination of knowledge is the main source of production and power (Castells 2003:22). According to Fraser, the concept of a knowledge society also points at several epochal shifts: (1) shift from a Fordist phase of capitalism (based on mass production, mass consumption, strong labour unions and high wages) to a post-Fordist phase (centred on niche production, declining unionisation as well as increased female labour-force participation); (2) shift from manufacturing technologies to information and communication technologies; (3)

shift from an international order of sovereign nation states to a globalising order in which huge transnational flows of capital undercut national state steering capacities (Fraser 2002: 1).

The globalisation of markets, of production, and of capital flows, as well as the new role of knowledge, involves the restructuring of companies. And involves also the restructuring of global value chains (or supply chains) and, of course, changes in work organisation. The global economy and the increasing competition force companies to restructure. They are responsible for the decision whether to relocate production capacities abroad or whether to outsource or subcontract production and services. These activities may lead to both spatial concentration of functions and spatial decentralisation of functions in smaller units (Huws and Ramioul, 2006: 24). But what are the company's motivations for relocating production capacities and for outsourcing? A long range survey on production innovation in the German investment goods industry⁵ states that the reduction of factor and personnel costs is the most important motivation, followed by the acquisition of new markets and "following customers" (Kinkel and Wengel, 1998: 4; Kinkel et al., 2002: 5). Factor and personnel costs are also the top-ranking motivations for outsourcing, because most of the companies in the survey are expecting that the outsourcing partner will perform more cost-efficiently than they are (Kinkel/Lay 2003: 4). Huws and Ramioul emphasise that the transaction cost economy is an important approach explaining outsourcing. This theory says that managers take organisational decisions related to "make or buy" with the view of minimising transaction costs (Huws/Ramioul, 2006: 20-21). But restructuring in companies does not only involve outsourcing and migration of jobs but also new production concepts. Kinkel and Wengel list the following elements of production or process innovations that are organised into three major categories (Kinkel/Wengel, 1999: 23): (1) new organisation principles (e.g. task integration, decentralisation or team work); (2) innovative quality management (e.g. continuous improvement, quality circles, certificates or environmental audits); and (3) redesign of the value chain (e.g. manufacturing segmentation, just in time-strategies or Kanban-systems). As a result of both macro-economic transformation and restructuring processes in industry, the global value chains are getting longer, more complex and more fragmented. Moreover, there is an increasing requirement for different intermediaries, which play a variety of roles including supply chain co-ordination, logistic management, recruitment, negotiating, site-finding or training (Huws/Ramioul, 2006: 23). What is meant with the phrase "value chain"? Huws and Ramioul propose the following definition (Huws/Ramioul, 2006: 19): "The value chain is a phrase used to describe each step in the process required to produce a final product or service. The word 'value' in the phrase 'value chain' refers to added value. Each step in the value chain involves receiving inputs, processing them, and then passing them to the next unit in the chain, with value being added in the process. Separate units of the value chain may be within the same company (in-house) or in different ones (outsourced)".

Restructuring in companies and restructuring of global value chains have impacts on the organisation of work. Stehr points out the following elements of work in the knowledge society (Stehr 2001: 200-201): (1) creation of knowledge based and highly paid jobs, that require specific skills and knowledge; (2) creation of low paid jobs, that require low skills and qualifications; (3) abolition of jobs; and (4) relocation of jobs from developed countries to lower wage countries. In the knowledge society expertise, skills, qualifications and knowledge are basis and guideline for all human actions. Stehr identifies knowledge as a major factor of production and as central for professional occupations (Stehr 2001: 11-12). Nevertheless, the knowledge society requires creative knowledge workers as well as workers for routine jobs and

⁵ "Manufacturing Innovation Survey", Fraunhofer Institute for Systems and Innovation Research (ISI).

repetitive work. There is a new split between "head" and "hand" and between "upskilling" and "downskilling" (Huws/Ramioul 2006: 26). The most important change in work organisation is flexibility. Most of the workers in the knowledge society have to deal with an increasing flexibility in terms of working time, volume of work, working contracts, skill content and tasks. Increased flexibility and new forms of work organisation may lead to dissolution of the boundaries between work and private life (work-life-balance). Moreover, a growing number of people are confronted with emerging multidimensional forms of insecurity, such as income and employment uncertainty, lack of union representation and precarious employment (Flecker et al. 2006: 45-57).

The clothing and textile industry: An industry in change

In the following, the clothing and textile industry will be presented as an example for a transforming industry. Global change processes crucially affect clothing, or rather fashion, style and taste. Consulting futurist Joseph Coates outlines in his article "The Future of Clothing" (Coates, 2005) present and future trends of clothing. He shows how fashion, style and taste have changed in recent years. In the view of global change processes – including social change, demographic change, modification of lifestyles, environmental change as well as the implementation of new and improved materials and technologies – Coates also illustrates possible future developments in clothing. He shows that social change, in particular the ageing of society, will lead to new trends in fashion. Thus, clothing for older people will become more comfortable and more youthful. Individualisation processes in society and changes in work organisation (for instance the trend towards working at home) will result in more informality in clothes. Moreover, modification in lifestyles, like the trend towards vegetarianism, will lead to a boom in synthetic and artificial materials and a turning away from natural leather and natural furs. The growing importance of sports and recreation will lead to more durable and robust clothes and the implementation of new materials and technologies (Coates, 2005: 1-8).

The modification of lifestyles in modern society (e.g. the desire to be distinctive in a globalised world or non-polluting lifestyles) bears not only new trends and styles but also new consumption needs. Even in the clothing and textile sector one can identify a boom of so-called "ethical fashion brands" or "green glamour" which are characterised by their environmentally friendly and socially acceptable production methods.⁶ Audet also emphasises that the demand for clothing products in the developed countries is influenced by underlying changes in demography, income and a growing tendency towards leisure wear, brands and fashion wear. He points at a maturing market in the developed countries and he explains that consumers in the developed countries are spending a declining share of their income on clothing and textile products. On this account, the fastest consumption growth opportunities will be found in the emerging and newly industrialised countries (Audet, 2004: 18).

But what are interesting are not only the transformation in clothes and fashion, but also the transformation in clothing and textile industry as a whole. According to a working paper of the European Commission the clothing and textile sector can be defined as follows (European Commission, 2003: 9): "The 'textile and clothing (T/C) sector' is a diverse and heterogeneous industry, which covers a very wide variety of products from hi-tech synthetic yarns to wool fabrics, from cotton bed linen to industrial filters or from nappies to 'haute couture'. This diversity in end products corresponds to a multitude of industrial processes, enterprises or market structures." Value chains in clothing and textile industry are quite fragmented. The value chain involves several production segments (Audet, 2004: 10-11): (1) the preparation of natural fibres; (2) the manufacturing of textile products; (3) the manufacturing of clothing

⁶ *Süddeutsche Zeitung* (2006-11-25/26): Kaufen oder Nichtkaufen, by Felix Denk.

products (garment or apparel products); and (4) retailing activities. The value chain also involves the preparation of man-made fibres, design, marketing as well as distribution and transport. Within the clothing and textile value chain, intermediaries become more and more important. Intermediaries provide services in the fields of consultancy or R&D (e.g. design of collections, communication with customers, technical assistance, and strategic knowledge).

To understand change processes and structural adjustments in the clothing and textile industry it is important to first of all identify the current trends within this sector. The clothing and textile industry is an important part of the European manufacturing industry. In 2002, the EU15 clothing and textile industry employed more than 2 million people in close to 177,000 enterprises. The southern countries are relatively more specialised, with their share of the clothing and textile value added in the total manufacturing value higher than the aggregate EU figure of 4 per cent. In contrast, the northern countries have started to diversify their clothing and textiles business more towards niche markets. In the New Member States, clothing and textiles have traditionally been a major sector of manufacturing industry (Commission of the European Communities, 2003a: 3-7). European clothing and textile industries have lost many jobs in recent years. In the EU15 there was a decline in employment levels of 31 per cent between 1990 and 1995, with a further fall of 15 percent between 1995 and 1998. All in all, the EU15 lost more than 1 million jobs in this period. In the last 20 or 25 years, European clothing and textile industries have outsourced many labour-intensive clothing production and semi-skilled jobs to neighbouring countries. While employment is falling, labour productivity has increased in the EU (European Foundation, 2003a: 3). The United States has also lost jobs in the clothing and textile sector. Employment fell by approximately 60 per cent from 1990 to 2004 while production output in this sector has been relatively steady and productivity has increased. But reduction of jobs in this industry is not only a phenomenon in western countries. China is losing textile jobs too. Employment is shrinking because of rapid advances in technology and labour productivity (Rivoli, 2005: 141-142). Rivoli notices: "In short, textile jobs are not going to China; textile jobs are just going, period" (Rivoli, 2005: 142). In the last four decades, world clothing and textile trade increased by more than 60 times. In the year 2002 the EU was the world's biggest exporter of textile products and the second largest exporter of clothing products (Commission of the European Communities, 2003b: 2). Moreover, the EU as well as the US is the world's largest consumer markets for clothing and textile products. The main winner of the opening of the EU market and trade liberalisation in clothing and textiles are countries like China, India, Pakistan, Indonesia, Bangladesh, Sri Lanka, Vietnam and Cambodia (Commission of the European Communities, 2003: 6).

In terms of working conditions, the textile sector suffers from a negative image. In developing countries one can find the so-called "sweatshop", which is a synonym for working conditions that violate human rights. Moreover, part time work, fixed term contracts and temporary work arrangements are quite widespread in the clothing and textile industry (European Foundation 2003b: 2-4).

But currently, the clothing and textile sector is indeed transforming itself. What are the major drivers of change? The starting point and reason for most of the future surveys in the clothing and textile industry was the expiration of the Multi Fibre Arrangement (MFA) at the end of 2004. The Multi Fibre Arrangement had for decades regulated international trade relations in clothing and textile. The MFA imposed import restrictions for clothing and textile products from several countries and played a crucial role in protecting producers in the EU and the US. As a result of the 1995 Uruguay Round of the GATT (General Agreement on Tariffs and Trade) trade in clothing and textile was incorporated into the World Trade Organisation (WTO). Under the WTO Agreement on Textiles and Clothing (ATC) the MFA was scheduled for

expiration. The MFA phase-out also included the elimination of quantitative restrictions for clothing and textile products (European Foundation, 2003a: 2; Rivoli, 2005: 121). The European Union enforced the liberalisation of trade in clothing and textiles. The EU-strategy involved the relocation of labour intensive work to lower wage countries, while the European clothing and textile industry focused on niche production, high quality products and knowledge creation. Trade liberalisation is a central concept of the Lisbon Strategy, which aims to transform Europe into a knowledge society and into the most competitive and dynamic economic region in the world (Becker, 2005: 4). Although trade barriers have been eliminated since the beginning of 2005, a number of quota regimes are still remaining. For instance, WTO members can impose quotas on Chinese apparel, clothing and textile imports (Audet, 2004: 18; Rivoli, 2005: 121). Such a tariff regime was installed in October 2006. At that time the European Union began to impose duties of 16.5 per cent on imports of leather shoes from China and that strategy proved to be a controversial matter. The introduction of the two-year tariff regime was promoted in particular by the southern European member states, aiming to protect their own production in the clothing and textile sector.⁷

The phase-out of the MFA is one of the major drivers affecting change in the clothing and textile industry. Foremost, the abolition of quotas will lead to higher levels of international competition as well as increasing production levels and decreasing production costs (European Foundation, 2003b: 4). The European Monitoring Centre on Change (EMCC) identified other drivers of change, which is a project of the European Foundation for the Improvement of Living and Working Conditions. They can be summarised as follows: In particular, the process of globalisation and the EU enlargement will affect the European clothing and textile sector. Both processes will have impacts on employment and the restructuring of value chains. Globalisation and EU enlargement will also lead to increasing competition, ongoing relocation of production capacities and new patterns of demand. Other driving factors of change are new technologies, such as Computer Aided Design (CAD) or Computer Aided Manufacturing (CAM), which found their way into the clothing and textile industry. Also the discussion of intellectual property rights (problem of counterfeit products), consumer protection, public health and environmental protection affect the development in the clothing and textile industry (European Foundation, 2003b: 4-6). The sketched trends and change processes in this industry show that the sector is currently at a crossroad. In the post-ATC period the clothing and textile industry has to cope with a variety of challenges and has to respond to a variety of drivers of change. From there, structural adjustments are necessary.

Future prospects in the clothing and textile industry

In the previous chapter, change processes in the clothing and textile industry were highlighted. This chapter will discuss future perspectives within the sector. Therefore results from existing future and foresight surveys in the clothing and textile industry will be presented. The review will focus on future prospects in the fields of work organisation and structure of global value chains. To map the results in these fields, two future surveys have been chosen. The European Foundation conducted the first survey for the Improvement of Living and Working Conditions and the second survey by the Organisation for Economic Cooperation and Development (OECD):

⁷ *The Independent* (2006-10-05): Europe imposes two-year tariff on shoes from China, by Philip Thornton; *Frankfurter Rundschau* (2006-10-05): Strafzölle machen Lederschuhe teurer.

- (1) The European Monitoring Centre on Change (EMCC) is a project of the European Foundation for the Improvement of Living and Working Conditions. It has surveyed future developments in different sectors of European industry, such as the automotive, chemical, defence, and food and beverage industries, information and communication technologies, and transport as well as the textile and leather industry. The foresight work of the EMCC is based on the monitoring of existing foresight studies, scenarios, innovation studies and data sources for different industrial sectors. Hence, the survey is very comprehensive and provides a useful overview on the European debate. Two articles related to the EMCC's future survey on clothing and textiles in Europe were selected for reviewing. The first article explores some of the main trends and drivers affecting the development in the sector (European Foundation, 2003a). The second article aims to explore plausible future outcomes for the sector (European Foundation, 2003b).
- (2) The future survey "Structural adjustments in textiles and clothing in the post-ATC trading environment" was drafted by Audet and was benefited from discussions in the OECD's Trade Committee and its Working Party (Audet, 2004; OECD 2004). The survey examines the processes of adjustment in the clothing and textile industry with a view on challenges in the fields of trade, labour adjustment, technology and innovations and other regulatory dimensions. The study covers adjustments in both developed and developing countries. Thus, the survey brings together a European and a non-European perspective.

On the basis of the surveys' results five hypotheses will be formulated. The hypotheses refer to the major issues of the paper: changes in work organisation and structure of value chains.

- (1) *European clothing and textile industry must continue to invest in new and emerging technologies to remain competitive.*

In general, pre-assembly stages in clothing and textile industries, such as designing, grading, marking of patterns or cutting of fabrics, have been revolutionised over the past decades with the introduction and application of Computer Aided Design (CAD) or Computer Assisted Manufacturing (CAM). By contrast, the assembly stages remains highly labour-intensive (Aduet, 2004: 10). However, the European clothing and textile industry has been modernised to address a fall in competitiveness. The competitive advantage of European clothing and textile industries depends upon the exploitation of new technologies, R&D, innovations and skills. As a result of modernisation, European producers currently have large market shares in technical textiles, non-woven products (e.g. filters or products for the automotive industry) and in high-quality garments. To sustain and increase these competitive advantages, the European clothing and textile industry must continue to invest in new and emerging technologies. Four main technology areas are central: (1) production technologies (process technologies, automation); (2) information and communication technologies; (3) new materials and products (e.g. multifunctional textiles and garments); and (4) innovation, research and development (Foundation, 2003b: 6; OECD, 2004: 6).

- (2) *A new industrial organisation model is needed to integrate design, manufacturing, distribution and sales functions.*

"Time to market" has become an important business factor in clothing and textile industry. Companies have to be able to respond very quickly to changing trends and

customer demands ("buyer driven production"). This means, products have to be designed, manufactured and distributed to the stores often within a few days. But value chains in clothing and textile industry are often highly fragmented and subcontracting is quite widespread. Therefore, an efficient organisation model and an industrial network are necessary that include suppliers, designers, manufacturers, transport and distribution as well as retail (European Foundation, 2003b: 3-4). Nowadays, technological progress in telecommunication and transportation networks has made it easier for manufacturers in the clothing and textile sector to divide the supply chain on an international basis and to produce in lower wage countries (Audet, 2004, 10 and 21; OECD, 2004: 7). Nevertheless, the proximity to markets is also a key to the ability to respond quickly to changing fashion trends. This explains the survival of many clothing and textile manufacturers in Europe and the advantage of lower-cost countries located close to the major consumer markets, for instance in Mexico or in the Mediterranean Rim (European Foundation, 2003b: 4-5). Case studies conducted in the Portuguese clothing and textile industry show the importance of the ability for quick responses to changing fashion trends. Many of the interviewed experts said: "Today speed is everything". Moreover, the interviews also confirm the assumption, that a new organisation model is necessary. One of the interviewed designers spoke about new training courses that bring together design and marketing. The example shows that the integration of different functions of the fragmented value chain is a central topic in this industry. The case studies are part of the pan-European research project WORKS ("Work Organisation and Restructuring in the Knowledge Society") that examines changes in work in the knowledge society.

- (3) *In the European clothing and textile industry a shift from manufacturing to service related functions and training, education and re-education is necessary.*

The competitive advantage of lower-wage countries in the assembly process forces exporting countries to shift their industrial cluster of expertise from manufacturing to service related functions, such as design, material sourcing, quality control, logistics or retail distribution. To achieve this, companies in clothing and textile sectors have to continue to invest in training and education (Audet, 2004: 16). Know-how, skills, education and training are seen as keys of sustained competitiveness. But at present many companies experience difficulties in recruiting staff with specialised skills. People entering the sector need high-quality training that is relevant to the new profile of the sector. Moreover, the existing workforce has to upgrade their qualifications and skills to deal with technological changes and modernisation of production (European Foundation, 2003b: 9). Also, governments should increasingly rely on training as part of labour market adjustment measures (Audet, 2004: 21; OECD, 2004: 6).

- (4) *The changing status of "time to market" forces the clothing and textile industry in developing countries to shift their experience from manufacturing to higher-added segments of the value chain.*

As already mentioned, time factors are currently playing a crucial role in determining international competitiveness and will become more important in the future. The clothing and textile industry in developing countries also has to respond to the changing role of time. While low wages still can be a competitive advantage in production, low wage countries are not necessarily competitive in managing the whole value chain. Therefore, efficiency in managing the value chain is required, including design, fabric procurement, logistical skills in transportation, quality

control, property rights protection, export financing and clearing of trade formalities. This model can encourage developing countries to develop a competitive clothing and textile industry on their own. To achieve these goals increased training and better qualification is needed (Audet, 2004: 16; OECD, 2004: 2).

- (5) *The clothing and textile industry has to enforce worker rights, international employment standards as well as environmental standards and consumer protection.*

As mentioned above, the clothing and textile industry suffers from a negative image in terms of working conditions ("sweatshop", child labour). Many workers within the sector are low paid, without or with limited access to training and education and union representation. Because of this, the clothing and textile industry needs to improve working conditions and worker rights (European Foundation, 2003b: 12). In recent year, public health, consumer protection and environmental protection have also moved into the centre of interest. This industry must continue to increase consumer protection (e.g. through scrutiny of chemicals in clothing and textile products) as well as to continue the implementation of environmental protection, for instance to reduce waste water levels or air pollution (European Foundation, 2003a: 5-6).

Conclusions

The paper concentrated on change processes caused by restructuring processes in industrial societies. It has been showed that work, company structures and value chains are changing in a global economy. The relocation of production capacities, outsourcing activities, process innovations and increased flexibility are the major factors of change in terms of work organisation. Furthermore, knowledge and qualification are becoming central elements of modern societies. Hence, many social scientists designate the current society as a knowledge society.

The paper cited the clothing and textile industry as an example for a transforming industry. Current trends and structural adjustments in the post-ATC period have been illustrated and two future surveys have been reviewed. The review focused particularly on changes in work and restructuring of global value chains. In order to summarise future prospects in these fields five hypotheses have been formulated.

The results of the review show that future surveys in the clothing and textile industry are useful for a secondary analysis of changes in work in the knowledge society. New forms of work organisation and the change of global value chains are central issues of the surveys. Value chains are getting longer and more fragmented and new forms of work organisation are needed to manage the separated value chains. It is important to examine future prospects in the knowledge society along the different units of the global value chains. In order to study future trends in work organisation it is crucial to focus on specific business functions (such as design, manufacturing, distribution and retail in the clothing and textile sector). Finally, the analysis of change processes has to integrate the different business functions and the different units of the fragmented value chain.

The next steps of research on change processes in the clothing and textile industry needs to focus more on the differences among clothing and textile industries in the US and developing or emerging countries as well as within Europe (e.g. Southern Europe, Central Europe and New Member States). It is important to consider, for instance, national differences in the fields of labour market policy or governmental regulation. Further reviewing and mapping of future

surveys should also deal with methods and techniques used in the surveys. For instance, many future surveys are using the scenario method or the Delphi technique (see article of António B. Moniz).

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