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ECONOMIC COMMISSION FOR EUROPE

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#### SEMINAIRE

COMMITTEE FOR TRADE, INDUSTRY AND ENTERPRISE DEVELOPMENT



Distr. GENERAL

7 March 2002

TRADE/WP.8/SEM.4/7

Original: ENGLISH

Working Party on Industry and Enterprise Development

**Round Table on "Industrial Restructuring in European Transition Economies: Experience** to Date and Prospects

Geneva, Switzerland, 12-13 February 2002

#### PANEL 1. INDUSTRIAL RESTRUCTURING: CAUSES, CONTENTS AND MODALITIES

Topic 2. Stages and Modalities of Industrial Restructuring

#### INDUSTRIAL RESTRUCTURING IN AUTOMOTIVE INDUSTRY, MACHINE **BUILDING AND ELECTRICAL ENGINEERING IN GERMANY\***

by Mr. Hans -Juergen Reichardt, Managing Director, Department of Industry and Transport, Chamber of Industry and Commerce, Stuttgart Region Germany

The following report outlines the current industrial situation in Germany, presents some aspects of restructuring such as outsourcing and describes links between the manufacturing and service sectors. It gives an insight into the restructuring of specific sectors using automotive, mechanical and electrical engineering by way of example.

The New Economy is now growing more slowly after its initial boom but it is still attracting a great deal of attention. Climbing share prices, considerable growth in sales, increased profits and above-average rises in employment figures among Internet and other IT companies have raised hopes of higher incomes and additional jobs in industrial countries. At the same time, though, the end of the Old Economy is continually being prophesied, i.e. the end of manufacturing and the industrial society. Many academics, politicians and business persons themselves consider that a service society is emerging in Germany. Many people are also talking about an information and knowledge society. That would mean a society owing its material welfare to

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<sup>\*</sup> This paper is presented as received from the author. Any remarks should be sent by e-mail to: Dr.Hans-Juergen.Reichardt@STUTTGART.IHK.DE.

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manufacturing and successful, international marketing of industrial goods turning to the sale of services and the availability of information and knowledge as the primary foundation of its further development. Official statistics indicate that this viewpoint is right.

When you consider the proportions of total employed persons made up by the manufacturing and service sectors then you will see that manufacturing's proportion has fallen from almost 50% in the 1960s to just under 35% nowadays whereas that of the service sector has grown from under 40% to about 65% in the same period. The trend becomes even clearer when you consider the number of companies. Only about 84,000 manufacturing companies are left of the 123,000 that existed in 1970, whereas the number of service companies increased from about 2 million to roughly 3.2 million in the 1990s. Finally the share of nominal added value that is made up by manufacturing has fallen from over 40% in 1970 to about 28% now, whereas this figure has risen from 45% to over 60% in the service sector. The official statistics – based on a system that has now been in place for over 30 years – clearly show that manufacturing is becoming less significant.

Even according to these statistics, which give a distorted picture of reality, Germany still counts as one of the most important industrial countries. In Germany itself the significance of the manufacturing sector is still considerable as regards sales, employment and added value. Nevertheless these statistics show that the manufacturing sector's shares of employment and gross added value have declined since the early 1990s and revenues have stayed almost constant. In 1998 manufacturing companies generated sales totalling DM 2,619 billion, employed 6 million persons and, at 30%, made a major contribution to the gross added value of business in Germany. The share of total sales has not changed since 1992. Employment, on the other hand, has fallen.

Some of the public have worried about this change, and have frequently found it a threat to overall economic growth and the job situation. Empirical studies have shown, however, that the added value generated by manufacturing in conjunction with other sectors has remained almost unchanged over the last 20 years. There can be no talk of de-industrialization. The statistical trends that have been pointed out are the result of an economy which is increasingly organized according to the principles of division of labour. This becomes apparent when you look more closely at the manufacturing and marketing processes for an industrial product. The manufacture of an industrial product involves a variety of activities. Starting with recognition of demand an entire added value process is set in motion including procurement, research, development, production, storage, transportation, distribution and, finally, customer care. All these activities used to be handled internally at a company but outsourcing has emerged as a major factor where lean management has been instated. In principle, then, the processes have remained the same but the various activities are being handled by many different companies.

Statistics that are strictly split up into the manufacturing and service sectors lead to the effect that has already been explained: Employment in the manufacturing sector is declining whereas it is rising in the service sector. Industrial dimensions and trends are still being measured primarily on the basis of statistics for the manufacturing sector. The increasing dependency of many service companies on the production of goods is not taken into consideration. The Chamber of Industry and Commerce for the Stuttgart Region therefore initiated a survey to look into structural change and the links between manufacturing and services with the aim of painting an accurate, up-to-date picture. This survey does not follow the sector approach that has been taken so far, and talks of an industrial network instead. Manufacturing companies form a unit together with consulting services (legal advice, business consulting, IT services, engineering services, tradeshows, advertising), auxiliary services (laboratories, capital leasing, hiring out of employees) and distribution services (wholesale, transportation, filling and packing).

Examining the industrial network in the Stuttgart Region under this aspect reveals the followings results among other things.

The industrial network generates about 50% of all jobs. Its significance for the macroeconomy in the

Region is thus much greater than in most other economic centres in Germany.

The proportion of services is growing continually within this industrial network. The number of jobs in research, development and engineering is rising particularly fast.

On the manufacturing level there is a widely branched network of suppliers that is unlikely to be encountered in such intensity at any other industrial location in Germany and constitutes a major advantage for this Region.

Together with Munich, Stuttgart is the leading German location for technical services. The increasing lack of qualified staff, especially of engineers from various disciplines, is a threat to the economy.

Undoubtedly there was a structural crisis in German industry in the mid-1990s. There is plenty of proof of this. For instance, Germany's share of the international market used to be almost 14% but has now fallen to about 10%. Another indication is the increase in direct investments by German companies in eastern Europe which soared from DM 103 million in 1989 to DM 4.2 billion in 1995. The following structural trends in business helped to overcome this crisis: tapping of additional earnings potential through services, exploitation of globalization opportunities, cost reductions, technical innovation, automated production, increased productivity, efficiency and competitiveness, synergy effects as a result of concentration processes, the founding of new businesses, technological leadership thanks to research and development, and eCommerce applications in business.

The specific impact of these structural changes can be seen using three sectors by way of example.

#### 1. Automotive sector

This sector went through a phase of restructuring recently that led to the re-engineering of entire processes, i.e. to a complete rearrangement of he value chain. Manufacturing processes are becoming leaner, and the associated concentration of end product makers on their core manufacturing has changed the distribution of added value between automotive makers, direct suppliers and indirect suppliers. Many supplier companies have evolved into system suppliers. Others have become component or part suppliers. For example, end product makers used to handle most research and development activities as well as key assembly steps but such work is now being carried out by system component suppliers who have to meet very short delivery times and assume tremendous product liability risks.

#### 2. Electrical engineering, IT and software sectors

Electrical engineering and electronics are areas of technology that are always good for new applications. As in other sectors, too, buyers of electrical and electronic products want more innovative solutions than previously. Not just basic innovations count here but also combinations of different technologies that extend the fields of use of electrical and electronic equipment. Telecommunications is a key part of electrical engineering and is growing strongly. It creates the foundation for entirely new service segments – such as all kinds of Internet services that will be available in future for mobile terminals as well.

#### 3. Mechanical and plant engineering sectors

Three fundamental tendencies need to be emphasized here. The customers of mechanical / plant engineering companies are no longer looking for individual machines or items of plant but for tailored solution concepts that can be integrated in their business and product processes. This necessitates customer care ranging from initial consulting services to the procurement of spare parts. Above all, though, mechanical engineering companies have to provide a complete package of services to accompany their products. The

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export markets on which German mechanical and plant engineering companies are active are growing. The transfer of production plants to eastern European countries is stagnating. Corporate groups that relocated part of their manufacturing activities to the Far East at the beginning of the 1990s are now producing in Germany again. The degree of concentration in the sector is comparatively low but will increase gradually through acquisitions.

The examples presented here show that industrial restructuring does not necessarily mean the extinction of a sector and the emergence of a completely new one (mining – media technology) but that restructuring is promising, especially in existing sectors.