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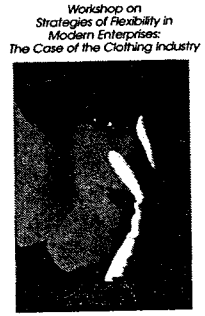

Antti Kasvio (ed.):

Industry without blue-collar workers - perspectives of European clothing industry in the 1990's

Postiosoite	Käyntiosoite	Puhelin (931) 156 111
Postal address	Visiting address	Telephone +358-31-156111
P.O. Box 607	Tullikatu 6	Telefax +358-31-157265
SF-33101 Tampere	Tampere	
Finland	Finland	

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the firms alive with the much reduced staff levels. Once it has overcome the managerial power struggle related to the privatization and the decentralization of the industry, management probably will redirect its attention to innovative strategies in the production organization.

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TAMÁS GYEKICZKY

Managerial Strategies in the Clothing Industry: A Hungarian Case Study

This report describes the main results of a case study in the Hungarian clothing industry. The study was carried out in the context of a major research project that originally compared the situation in Italy, France and West Germany. In Hungary we concentrated on the organizational changes taking place in clothing firms, the use of new technology and on the strategies adopted in this process by management and labour.

Our case factory in Budapest — we will here be calling it SUPER — will be privatized during 1992-1993. In many respects this obviously means that our conclusions have only limited applicability in the longer term.

The Case Factory

SUPER produces men's clothes in five units throughout the country. However, the planning and marketing functions are centrally organized in the Budapest headquarters. SUPER currently has monopolized market access.

In 1991 the company had a payroll of 1,200: the Budapest unit employed 450 people, while the other units had between 80 and 150 workers. These figures are substantially lower than just a few years ago when the company's workforce numbered over 2500; the decline has come chiefly as a result of the changing market situation particularly within the COMECON area. Most of the people at the Budapest headquarters are administrative staff, while the number of production workers is higher in the other units.

The units differ from each other in terms of both labour force structures and qualification and educational levels. Qualification levels are highest in Budapest and in some units in the western part of the country, where most of the staff are skilled workers. For instance, people working in production planning and in the GERBER cutting departments have qualifications from various trades, and supervisors a university or college degrees. The leadership of these departments has contacts with the Technical University of Budapest.

Following long periods of uneven technological development, there are serious incompatibility problems in the company as far as production equipment is concerned. For example, the cutting department has a manual cutting machine next to their GERBER, while elsewhere ten-year-old sewing-machines imported from the former socialist countries operate side by side with new computer-controlled machines. This compatibility problem is due to the fact that the company has not been able to follow a consistent investment policy in the absence of sufficient financial resources.

In terms of its hierarchic relationships, linear system of management and formalization of individual responsibilities, SUPER can be taken to represent an 'ideal type' of the classical Central European large-scale industrial organization. As regards its formalized structure the company is totally centralized. In charge of SUPER is the General Director, who is elected by the Enterprise Council. There are three Directors who report directly to the General Director: the Commercial, Technical and Personnel Directors. Their responsibilities extend only to their respective organizational activities, and therefore horizontal connections are poorly organized. As a consequence there is very little if any real interplay between the production process, marketing and recruitment policies. The organizational conflicts within the company can largely be explained against this background.

Informal interaction and cooperation is a far more important asset for SUPER than its formal organizational structure. Indeed without these informal connections the business would hardly be operative at all.

Responsibility for establishing and maintaining contact with customers lies with the commercial department, which has no direct interface with production or planning departments. Working together with company lawyers, this department negotiates all contracts and thus determines the main conditions of business. This means that the main conditions for production (estimated costs, wage levels, materials) are decided without any knowledge of existing production capacity and before any concrete production design.

Another, closely related problem is that the calculations made by the commercial department are based on a different method and logic than is used by the production departments, yet all contracts are binding upon every department and unit. For instance, the commercial department will use mass-produce prices in its calculations, whereas the production department bases its operations on cost prices. Since each department must adhere to the given financial plan, they will sometimes operate at a loss.

Another example is provided by the method of planning in GERBER. The commercial department is not interested in the series produced by GERBER, even though this may have a major impact on cost structures and profitability. The GERBER department is also required to adhere to the central cost plan, which means that it, too, will produce a deficit.

The production planning department gets down to work after the main parameters for the production process have been settled. The planning department will calculate the concrete conditions of production (place, time and structure of manufacturing) and design the cutting forms. The department is divided into a number of subunits, such as the designer, graphic and maintenance divisions. These units are horizontally connected to one another. A joint effort is needed by the individual members in this department in order to provide a data system that the computer can understand. At the same time, the designers must of course also be satisfied with the computer's services.

The cutting form design is prepared by computer and linked up with production planning. All cutting designs are saved on disk together with

the date for production. The disk is fed into GERBER, while the date is recorded on each production document: local production units do not have computers and will operate according to these dates.

All cutting is done in the GERBER department. The cut parts are transported to the local units, which do the sewing. Each unit specializes in certain products: one of them produces trousers, another coats, etc. The final stages of assembly and quality control are brought back to Budapest again.

The Firm Strategy Centre

Top management at SUPER have virtually unlimited power to formulate business and reform strategies. Their position rests on the formal structure of the enterprise in which the production process and work organization are based on centralized principles of division of labour: on the strength of this position they can independently decide on company goals. The power vested in top management was further strengthened by the setting up of an Enterprise Council, a body that is chaired by the General Director.

Operative responsibility lies with the administrative units. Some of these departments (especially at the top of hierarchy, legitimated by the central resources as there are: access to Western customers on the one hand, and access to the political bureaucracy in the ministries and the privatization agency in Budapest, on the other) can freely and independently decide, without any outside interference, on the whole life of the enterprise. Therefore the departments that were under the commercial director gradually developed a privileged position for themselves.

The reform aspirations at the level of top management can be supported by the market successes in the mid-1970s when the company flourished with the extensive cooperation that Hungary had with the Soviet Union and other COMECON countries. This period was characterized by extensive markets, low quality requirements and an abundant

supply of labour force. The firm was in a position to produce large volumes in long series. The situation was much the same at the level of the national economy: Western credits were granted with favourable conditions, the ready supply of cheap capital and the promise of future growth discouraged management from investing in modern technologies. At SUPER any such investments had to be made without government support since the firm had been excluded from the state development programme for the consumer goods industry. Thus the firm management could only repeat the old Hungarian saying: Do it yourself if you have no servant!

The reform aspirations among top management at SUPER are also explained by the firm's present financial position: although it is struggling with marketing, the firm remains on a fairly sound financial basis. The reason for this is that SUPER was in a position to start reforming its market relations a few years ago. Starting from 1986/87, the firm began to diversify its market orientation (towards the Soviet Union and COMECON) before the collapse of these markets and established contacts with Western partners. The main step was to introduce computer technology by using the profits from Soviet trade. This helped to convince Western partners that SUPER was capable of meeting the relevant quality requirements.

The earlier successes and the changing market situation together with the firm's present business contacts serve to legitimize the position of the central factory staff. However, these bureaucratic efforts reproduce not only the hegemonic power position of top managers as a consequence of privileged market access; the top-down mode of management also cause massive losses to their organizational position as a consequence of bureaucratic waste and overlap.

The third motivation to stabilize organizational power lies in this new market strategy, in which a key element is subcontracting work for foreign partners. This solution should refer to the whole firm since it seems to be a high prospective activity for the future as well.

Access to Western markets and the possibility of subcontracting

provided and still provides a certain degree of protection against domestic economic difficulties. However, there are certain problems involved in this strategy as well, most notably the cyclical character of production. Nevertheless SUPER should have the chance to reform and restructure, under the direction of top management, its organization and technology within the existing competitive market constraints, but Western customers have no longer been interested in this investment in spite of possibilities of low-wage production with a qualified labour force.

In this situation SUPER is faced with paradoxical alternatives. On the one hand its Western partners can help top management to stabilize the company's economic and organizational relations. The risk, however, is that this cooperation might put an end to all technological and organizational development as foreign sources are no longer interested in investing in technology. If the company opted for the other marketing concept — the production of small series within a flexible organization that is adjusted to market requirements — that would destroy the present constitutional conditions and effectively undermine the organizational power of top management.

In any event the key to market access is now held by Western customers. SUPER has gradually been entering the highly competitive markets with a wide range of different suppliers and producers in different countries, but it still remains in a subordinated position vis-à-vis its partners. Besides, the competition is truly fierce. For example, the firm would need to accumulate the capital it needs for maintaining and improving its technology all by itself. The production equipment is geared for economies of scale. The main problem, however, is that foreign customers are ordering smaller and smaller series. SUPER has to try and maintain a precarious balance between non-profitability, increasing burdens, and increasing loans.

One of the possible strategies is the privatization plan floated by the company's top management. Originally the intention was to privatize the firm independently without any collaboration from state agencies.

This became possible with the Law on Economic Associations (Company Act), which had been prepared and endorsed by the previous government in 1988. This opened up new chances of forming of limited companies (KFTs) and joint stock corporations (RTs). On the one hand, the legislation gave foreign enterprises lucrative opportunities to invest in Hungarian firms and to participate in the privatization process by supplying capital. Together with the first new law in 1984 — the Act on Enterprise Councils — which transferred certain ownership functions from ministries to the newly-established Enterprise Councils, the factory leadership was allowed to choose its own owners. In our case the road of spontaneous privatization was soon blocked as the external economic and political conditions for reform had decisively changed. Therefore only part of top management's privatization plan could be realized: that was to sell a single production unit and to establish a joint venture with a former French partner in western Hungary in 1990. In this region the economic crisis is less severe than in other parts of the country, and the unit was still making a profit. A considerable part of SUPER's qualified labour force have gone into this joint venture. The purpose of this experiment is to try and break the technical and organizational deadlock which is evident to the whole staff. The joint venture can be said to combine a Tayloristic production concept with a high level of traditional craft skills and a flexible use of employees. Its organic and technological characteristic are as follows: a high level of organizational integration, a high level of technological sophistication, a flexible utilization of the labour force, market constraints depending on the business situation of the French partner, individual responsibility of management staff and a system of group wages. It is clear that this production concept is not identical with the strategy of top management staff.

According to the latest plans of the State Property Agency (AVÜ) the firms is to be privatized during the 'third round' in 1993. For this reason the whole firm — including its production departments — is now controlled and managed by this Agency. Under these circumstan-

ces the top management has but one concern: to try and assure continued power positions in the future.

Transformation Strategies on the Shopfloor

Changes in Factory Power Relations

With this joint venture SUPER has seen many changes to the former situation of shortage economy, as the French partner provides all the raw materials. The only job remaining for the management of SUPER is to provide for the production process, i.e. the necessary labour force and the technology. However, the firm still remains very much dependent on the Hungarian economic environment, and in this sense it occupies a double economic position: on the one hand it is operating within the capitalist market economy, on the other hand it is still part of the shortage economy. This double structure has led to a conflict situation between the shopfloor and top management.

The central factory staff began to lose much of their control as the bureaucratic superstructure of the official organization and its rent-seeking actors artificially separated the different tasks of production by bringing in a new type of division of labour. Their supremacy over 'productive interests' and market-oriented management groups has prevented the necessary integration (and cooperation) between the actors of the production process on the one hand and between market demands and the production process, on the other.

The main actors in the production process — departments, leaders, shopfloor management — have developed forms of cooperation against the hierarchic patterns of direction and execution. This informal structure of cooperation is based on a direct confrontation with the competitive demands of the market and the advantages of computerization.

The Market Challenge

The managers in the production planning department have said that production engineering is very much burdened by administrative overlap:

> In economic terms it makes no sense that key strategic decisions are made by people who do not understand the whole production process. Profit margins may change during the production process and therefore they cannot be calculated at the company headquarters. (Head of the production planning department)

The production planning/engineering department, which works under the supervision of the Technical Director, occupies a central place in the production process. Officially the department should establish its contacts with production sites and other departments through this channel. The department is not allowed directly to contact customers because market access has been monopolized by the Commercial Director.

Formal channels of interaction and information within the factory organization are poorly organized. The main problem here is that the production department needs more information for its design purposes than is available through official channels. If it did have access to the necessary information concerning the ordered models or materials supply, numerous mistakes could be avoided. The consequences can be serious indeed: complaints from customers, claims for damages and even reduced product competitiveness.

The primary interest of this department is to acquire the necessary information that can help eliminate errors to a minimum. Current efforts towards 'lean production' concepts are taking place in an informal, but not necessarily in an illegal way. Business is now pursued as follows:

As we saw earlier, customer contacts are maintained by the commercial department. The parties enter into a contract, and then the customer's technical experts (who prescribe in detail the parameters of the production process) negotiate directly with the executives of the production planning department. However, this procedure is not fol-

lowed systematically with all new customers — in the case of established producer-supplier relations it is obviously not even necessary.

One of the main obstacles to improved efficiency, according to the production engineers we interviewed, is the organizational structure which reproduces the informational hierarchy:

> We cannot continue with the present procedures. We are now responsible for the preparing the entire production process, for the technical part of production and for the labour conditions, and yet we do not have access to the information we need about customer requirements. Why aren't we allowed to contact our partners direct, because they come to us to make for their demands. (Head of design group)

The aim is to build up a flexible organization which can provide correct answers to the market demands without centralized intermediation. The only agent of change in this process of restructuring can be the production department because its staff possesses the necessary planning knowledge about the production process under flexible and high-quality Western market demands. If the factory collapses, the members of this department want to function as an independent 'service centre', providing their partners not only with software but also with every possible facility related to modern design.

The Effects of Computerized Technology

Computers are involved in two closely related phases of the production process: in the work of the production planning/engineering department and in the GERBER cutting machine. The main proponents of computerization within the company are found at the level of middle management.

There are two opposing philosophies which underlie further efforts at technical and organizational rationalization by means of computerization: on the one hand there are the interests of the management staff who want to have more independent market access and self-regulated production engineering; and on the other hand there are the interests of top management.

Computerization (which should be coordinated by the production planning department) might well serve as an important tool on the way to 'lean production', for it would greatly facilitate the handling of data concerning customers demands. Therefore, according to our interviewees, the introduction of computers would give a decisive boost competitiveness.

> A computer can help us collect all the information we need for the production process. At the same time, it would greatly improve flexibility by providing several forms of cutting. I can show the customer exactly what options there are directly on screen. (Supervisor at production engineering department)

The use of computers should induce new forms of organizational integration according to the demands of real cooperation. This new integration can only be strengthened by a specific orientation to market demands and by the competitive pressures to meet the requirements of customers or end-users.

Organizational Changes and Manpower Policy

Suffering most from the shortcomings of the previous mode of 'integration', the production engineering department would like to reintegrate the whole production process. That, ideally, would be organized around computer technology and a flexible organization. The evolution of this new organization from the existing one is geared towards greater decentralization within the factory and towards the reconstruction of the earlier Economic Working Group (VGMK), which was established by the employees of the production planning department.

The previous system was to sublet equipment to working groups which normally consisted of qualified employees and some management executives. The aim was to optimize the existing resources of flexible manpower and services and to externalize the organizational demands. In organizational terms these groups were fully autonomous. The motivation for work was better if the employees worked in these

groups on their own, but the practice did not differ in principle from overtime work. Better money incentives and career opportunities were regarded as particularly important. The institutional background on which the department is planning to base its future activity is this so-called VGMK.

> We have had our Economic Working Group since the mid-1980s. We work for these small businesses who cannot do their own cutting forms. The measurement of series is not important for us because the computer can only produce one pattern for every case. The main difficulties are of course related to the planning of other conditions, but in the case of small producers that is not our concern. We have had many good business opportunities, and in our marketing we are totally independent of the factory. We can use their equipment and their computer; we simply pay the rent for them. As we are using the technique as authentic owners why shouldn't we not become the real owners? (Skilled worker from the department of production planning)

The production planning department — shaped by the traditional organization of the garment trade and its traditional system of sharing work — uses the computer primarily to substitute manual work. The philosophy is very much influenced by classical Taylorist doctrines, i.e. the aim of management is to try and minimize human intervention in the work process, which is seen as the best policy to minimize errors and to raise quality standards. In the absence of the necessary funds for the computer system, this is of course no easy goal to realize. Nevertheless the management has tried to implement the Taylorist principles and its automation philosophy both in its policies towards the labour force and in its efforts to increase the responsibility of local management and supervisors for the rationalization of work. However, given the existing financial, motivational and constitutional difficulties, the 'human factor' cannot be discounted and substituted by fully automated production lines that are controlled by computers. Should the technocratic visions of management for the modernization of production fail as a consequence of production conditions, there still remain the efforts to minimize errors, i.e. to narrow down the degree of tolerance

by applying a 'negative system of premiums'. With the help of these money incentives, something like a continuous production inspection by employees themselves should be set up. Wages will become dependent of working time on the one hand and on the frequency of errors on the other. In the long run, this strategy should lead to a increased worker responsibility. The management's aim is to substitute labour by technological innovations. In practice, the optimization of production processes by means of outdated equipment can only be grounded in efforts to raise the qualification levels of the labour force. Systemic functions have to rely upon social integration; the optimization of the production process is dependent on such variables as higher wages and further education and retraining. From this point of view the 'human capital' oriented production politics applied in the enterprise has been in conflict with its Tayloristic and technocratic philosophy.

In conclusion: According to shopfloor management the changes that have taken place do not correspond to the classical methods of Taylorized labour, particularly in the department of production engineering. The strong tailor-made cooperation within the production design department should go hand in hand with a democratic form of ownership.

Between Two Steps

The staff working on the GERBER cutting machine are in a paradoxical situation. On the one hand they have a post-Taylorist wage system and on the other hand the equipment with which they are working is inseparably linked up with mass production. This paradox determines the further aims and strategy of the GERBER department. The department has only two possible paths to develop its innovation strategy: either reform the Taylorist production concept or reconstruct mass production.

A. With the introduction of the GERBER machine, the emphasis in manpower policy shifted to recruiting 'universal workers' who are capable of all kinds of work tasks. Group wages were introduced in

1991, as the workforce in this department was now relatively homogenous in terms of qualifications.

As traditional cutting machines are still in use in the GERBER department, cutters must also be familiar with mechanized and manual tailoring methods. Jobs have been flexibilized according to the more diversified market demands, which means that there is greater pressure to meet higher quality standards and to meet shorter deadlines. At the same time, simple work tasks have been reduced to a minimum. On the other hand, the machine's programme has to be regularly modified according to changing conditions. Therefore operators must be familiar with the basics of computer programming.

B. The section working with the GERBER machine is interested in the effective utilization of the integrated computer system. To be more precise, the interests of this cutting department as a whole are bound up with serial production as made possible by the GERBER equipment. The productive utilization of GERBER depends on economies of scale; the rate may not fall under a certain level. The unit produced good results under the old COMECON market, but during the 1980s its profit performance has declined.

> Series length is a major consideration for our department. The costs of GERBER are always the same regardless of the series. Our profits are bigger if we can cut out large series. Small series are not profitable, and in these cases we sometimes decide to use manual methods. This makes sense economically even though the quality is not too good. People make more mistakes than GERBER. (Leader at the GERBER department)

From this profit point of view GERBER reinforces the aims and logic of mass production to produce longer series. The problem is that the new market demands run counter to this aspiration.

Management can respond to this paradox in two ways. The first alternative is for GERBER management to support the reform strategies of the planning department against the centralized organizational concept and practice. The second option is for GERBER management to

support the reform strategy of central management staff to reconstruct the relations of mass production.

The situation in the GERBER cutting department clearly reflects the new developments in the clothing industry. With the new market demands for shorter series and high quality standards and the reorientation towards convertible currencies, the department got rid of its mass production technologies. Now, we may see a gradual return to manual tailoring. Other reflections on the development of the clothing industry are certain management concepts for technological reorientation in the factory. Accordingly, it is possible to produce small series with mass production technology if a flexible structure and production system are given.

> Imagine a factory with no people. Your customer walks into a room where sizes are automatically measured and comes back in a few hours's time to pick his clothes. That is how a fully computerized factory could work; the same can be already found in the automobile industry. This is how things are going to develop in the future because you cannot tie the system down to concrete places. You cross the frontier to place an order for a suit and when you arrive in Budapest you can try it on. (Engineer at the GERBER department)

Outside the Actual Organization

Not all the ideas advanced by finances management with regard to the computerization or reorganization of the factory were fully realistic. It is not possible to completely eliminate the human factor, and in many cases the customer himself causes errors to be made. Also, the factory lacks the financial resources for further investments in modern technologies and computerization.

For these reasons the main concern today both at the firm level and in the Hungarian economy as a whole is not with technological development but with reforming the institutional and constitutional conditions of the production process. On the other hand, the institutional and

normative solutions adopted will serve to condition the outcomes of political struggles within and around private and collective business interests. The alternatives will be the new basic points of the factory innovation, because the present factory organization should be dissolved and a new one established in its place.

Our case study pointed at the following major types:

— Entrepreneurial individualization. The possibility to become self-employed has to be interpreted in the context of the second economy and the small business sector in the factories during the last ten years. The people who are working in small enterprises within firms (e.g. in VGMKs) would want to be independent entrepreneurs now.

> I have worked in this company for ten years. I have three trades: I can cut, sew and make a cloth alone. I have learned to use the computer but I cannot do programming. I used it as a tailor's scissors, just pressing the keys. I was not satisfied with my job.
>
> During the last few months I have been designing and producing clothes; not just suits but also dresses and costumes. I make them together with my wife at home. When I leave this job I go straight to my second job. We make ten or twenty pieces, that's all, but with our partner we earn more money this way than at this factory. We would like to build our own house, so we need the extra income. (Worker, department of production planning)

Our choice of interviewee was motivated by a contradiction in SUPER's manpower policy. For many years the company made use of the knowledge of its employees only in a Taylorist way. Computer technology and other modern equipment (as far as these were available) were used only as means to achieve a higher degree of standardization. Skilled workers were employed in every position regardless of their qualification requirements.

The human capital of the workforce was not capitalized on. The expertise of old and young skilled workers has only been utilized in the process of computerization and in retraining. These experts are now trying to take advantage of the fashionable and politically supported opportunity of 'entrepreneurial individualization' by setting up small companies; they are taking the first steps towards independent business activity which under the present circumstances guarantees more financial security than wage employment in the former state industry. At home they may not only tailor and plan, but also sew, marketing and sell their products. In this way they are trying to solve the contradiction between the decline of mass production on the one hand and the increased diversification of markets on the other. In this context wage labour is only a supplement to private business interests at home. Wages provide the means for the necessary private investments. With one foot in the factory, spending eight hours in garment manufacturing, they start their fight for independence after finishing work.

— Changes in forms of property. Various versions and alternatives can be imagined, including foreign ownership and joint stock companies (with the Hungarian state). This road to privatization depends on the State Property Agency.

Concluding Remarks

1. We have identified two different strategies of reform in the Hungarian clothing firm which can be characterized as follows:

Reform Strategies

	1st Strategy	2nd Strategy
Actors:	Factory central staff	Shopfloor management Skilled workers
Types:	Conservation and reconstruction of earlier factory structure	Reform of the whole factory organization
Direction:	Past 'Socialist market economy'	Future Market economy

Supported by:	Western customers People from the state administration	Western partners Trade union Employees
Background:	Organizational power Market successes Business connections Experiences with the system of centralized economy	Knowledge Technology Information Experiences of the production process
Interests:	To stabilize the actual organizational and power structure	To destroy the actual organization
Adaptation to:	the market with large series	new market demand with small series
Production concept:	Mass production Taylorist division of labour	Flexible manufacturing Decentralized structure Taylorism within the single department or subdivisions
Further resources:	Profit + State support (or market protection)	Profit
Manpower policy:	Division of employees	Cooperation with employees
Privatization strategy:	Foreign customer Joint venture Management buy-out Sale of single units in the country Joint stock company with state property	Joint venture ESOP Collective venture

These different management strategies are based, on the one hand, on the new trends in economic development in Hungary; and, on the other hand, on the new market demands in the clothing industry. The shortage economy is gradually fading into the background and being replaced by the entrepreneurial problems of sufficient market adaptation. Adaptation to market conditions determines the everyday conflicts within the enterprise and triggers a selection process among the different groups of employees. The winners seem to be those employees who will be adapted to flexible specialization in the garment trade. The attempt to adapt to market economy is the same process to try to meet the requirements against the garment trade.

The transformation can be identified at every level within the factory, even though the individual departments are responding to the challenge in different ways. Innovation at the level of the production process can be supported by earlier market traditions and continuity of knowledge, experience, the results of former transformations and consequences of applied technology.

The changes have been decisively influenced by the organizational development during the past ten years. We demonstrated in detail that the VGMK forms the basis for the new type of work that is carried out by the production engineering department alone. It is also the basis for those forms of cooperation and business relations which require a broader utilization of computers. Home fabrication, in-door ventures, the need for teamwork and dismissals to optimize the pool of labour force — all these are very recent outcomes.

The company's top management, who want to rely exclusively on their former experience, are trying to re-establish the principles of mass production. In addition, they want to establish new forms of cooperation with the state administration and in this way to apply for financial and market support for its business operations. The shopfloor management has a different strategy to reconstruct the production organization according to market requirements. These different management strategies can be synthesized as a choice between mass production and flexible specialization. The conflicts between management groups reflect the different paths of development in the clothing industry.

The main actor in the present change towards new market demands is the shopfloor management. The staff of the production planning department are well aware of the close interdependence between the

standardization potential of computerization and the growing demands towards market flexibility. In their reform attempts they lean on their education and knowledge. They are young and therefore the logic and values of neither the mass production system nor of planned or centralized economy affect their socialization.

In the transformation process the technological system that has been built up during the past ten years, plays a very important role. The future visions aims of the shopfloor management are based on the use of computer technology. The need to adapt to the market poses a special challenge for economic organizations, and their response to this challenge also includes computer technology as a new instrument, representing the future of the new level of organizational integration. However, this option is only available to those departments which turn their attention to the market competition.

In spite of this, the problem of modern technology is subordinated to the present organizational and political changes not only in society at large but also within individual firms. Attitudes towards horizontal cooperation and vertical integration, towards productive work and its bureaucratic supervision, towards privatization and the necessary organizational links between the decentralized units and departments, modernization costs and profitability demands, market flexibility and economies of scale — all of these are much more important questions than the installation of computers. This does not mean that some people from the management should not have technical visions about the future prospects of the clothing industry. But these are dreams rather than actual strategies for the factory. Perfect automation — which presupposes that clothes (like automobiles) can be manufactured on flexibly automated production lines — cannot be realized within the foreseeable future. The real alternatives can be seen in the strategic plans of the different factions of management and in the disintegration trends which characterize the present situation.

2. The limits of Taylorist production concepts were a recurring theme in our case study. The relations between different reform

strategies and the preconditions for Taylorism are described in the following Table:

Elements of Taylorist production concepts	Reform agencies		
	Central staff	Prod. Pl. Department	GERBER Dep.
Technological division of labour	+	+	+
Manual division of labour	+	+	-
Organizational division of labour	+	-	-
Wage system	+	+	-
Production series	+	-	+
Control over labour process	+	+	-

(+ = Taylorist method; - = post-Taylorist strategy
These concepts are formulated in Hirsch et al. 1990.)

We can see clearly that every reform strategy contains certain characteristics of Taylorist production concepts. The system of applied technology is directed automatically to shaping the reform strategies because the same technological system can underlie different management aspirations. In the light of our experiences it seems that the end of mass production does not necessarily imply the full negation of Taylorist production concepts. This hypothesis is confirmed by our analysis of the knowledge relations in the production planning department.

The utilization and structure of knowledge and expertise of employees are subordinated to the firm's power relations: the hierarchic relations were identical with the way in which knowledge was distributed not only within the whole factory but also within the production planning department. These relations determined the employees' data processing competencies. The reform strategy of the management of the production planning department did not aim to change these rela-

tions. The rigid power and knowledge system continues to underlie their visions of reform.

Nevertheless employees remain in command of another type of knowledge, which may be described as the traditional craftsman's experiences. These experiences were utilized by management in the development of software: cutting forms (sizes, alternative designs) were developed on the basis of this traditional knowledge. For this reason the computer itself incorporates the traditional industrial culture and skills which seemed to be destroyed with the process of computerization. The future of computerized knowledge and the complex experiences of skilled workers are separated. The computer should form the basis for the new Taylorist attempt to reform the factory but the workers, who are motivated to produce clothes in their own small workshops, will have to leave the firm. It remains to be seen how shopfloor management can cope with software development without the complex experiences of traditional craftsmen. Can the computer produce flexible production all by itself, without qualified workers?

Note

In Western Europe this project is being carried out under the title 'New technologies in the management and leadership of industrial factories — the experiences of French, West-German and Italian industrial enterprises'. The leaders of the projects in the countries concerned and the main research centres involved are as follows:
- Universität Bielefeld, Fakultät für Soziologie: Professor Gert Schmidt
- CNRS Paris, France: Professor Pierre Dubois
- University of Bologna, Italy: Professor M. La Rosa
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