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# **Occupational profiles and training requirements at Level 3 in the Spanish textile and clothing industry**

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European Centre for the Development of Vocational Training





Occupational profiles and training requirements at Level 3 in  
the Spanish textile and clothing industry

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## Foreword

The present study looks into the current needs of middle management in the textile and clothing industry in Greece, Spain and Portugal and examines ways and means of fulfilling these needs within a ten-year prospective.

It forms part of the second series of reports undertaken within the study project on these two sectors. In all, nine studies have been commissioned to describe vocational training demand and supply and to investigate possibilities for the transfer of know-how both at national and Community levels.

It was decided to examine the training needs of middle management, who play a keyrole in the sectors and bear responsibility for a multitude of tasks ranging from those of a specialized worker to complex managerial duties, depending on the size and policy of the undertaking concerned.

The general introduction of new technologies in production, warehousing and distribution, has led to a change in the relationships between the sub-sectors, making them more interdependent. Middle level staff are now required to undertake tasks and initiatives and assume responsibilities which differ from their traditional role of guiding and supervising small groups of workers independently operating within the enterprise.

Moreover the role of middle management staff is becoming increasingly important in that they are required to ensure the smooth operation of highly sophisticated systems and machinery employing new technologies on the shop floor.

In Greece, Spain and Portugal, the shortage of specialized, trained staff at this level means that even greater importance

is attached to the updating and adapting of middle management in order to fill the existing gap in their practical and theoretical knowledge.

In these three countries, middle management has the advantage of having acquired considerable work experience, having formerly worked under and together with master-craftsmen in the trade, a factor which should not be neglected. However, they do not possess an adequate theoretical knowledge and consequently are unable to use to the full advantage the equipment and facilities at their disposal.

This situation is aggravated by the recruitment and staff development policies pursued by various enterprises.

Whilst it is acknowledged that training is an important factor in overcoming the shortage of staff specialized in new technologies, there is only a limited supply of appropriate training.

The introduction of new technologies in firms is followed by the movement of the staff, by redundancies and only a low level of recruitment. In-firm training programmes are rarely appropriate in that the majority only provide the workers with a limited, superficial view of the functioning of the equipment with which they are to become familiar.

The reader will see that we have given some attention to the definition of middle management in these two sectors. The European Community sees middle management as corresponding to level three of the SEDOC qualification scale. However, in view of the real relationship between the tasks and the qualifications of middle management in these two sectors and in the three countries, this classification does not apply here.

In an effort to find a more realistic approach, we chose a number of functional criteria to define the characteristics of middle management in the textile and clothing industry in Greece, Spain and Portugal.

The reader will identify similarities in the situations existing in these three countries and will see that common training needs exist, for example the improvement of the general education level, the learning of foreign languages, training in electronics applications/computer operations as related to the sector.

The searching for solutions to fulfil these needs, is, however, appropriate to the situation of the sector in each national context. Attention has been given to ensure that such solutions are complementary to existing provisions.

Although the terms of reference for the three groups were the same, the methods applied in practice differed as a result of technical difficulties to constitute an appropriate sample.

Nevertheless the definition of needs and the short and medium term solutions proposed, do, we believe, respond to the real situation in each country.

The reports aim at promoting the design and realization of training programmes. In this way it is hoped that the studies will contribute to the general effort to restructure the textile and clothing sector in the three countries.

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## 0 Introduction: Objectives and Methodology

The purpose of this report is to look in depth at the training needs being generated by changing skill requirements in the Spanish textile and clothing industry in occupations at Level 3 in the European Community classification.

Earlier studies, together with this report and work being carried out by Cedefop on the comparability of qualifications in EC countries, relating among other things to Level 2 in this sector, are beginning to fill the great gap in our knowledge regarding skills and training in the Spanish textile and clothing industry.

Paralleling this work, efforts are being made to improve the statistical and other data available on this sector, so that hopefully all this will improve our knowledge of the problems affecting the management of human resources in the sector and will provide a basis for action to be taken by employers and unions in the industry.

Initial plans for the report envisaged three concrete objectives:

1. to determine the occupational profiles of the workers who currently make up Level 3 in the Spanish textile and clothing industry and recent and future changes,
2. to gauge the training needs at this level in each textile subsector over the next ten years,
3. to propose measures to rectify deficiencies in the training of Level 3 workers.

These objectives were tackled in three phases, the first of which comprised three case studies of typical textile and clothing firms through contacts within those firms.

The firms chosen for this purpose were as follows:

Firm A A textile firm, in the combed wool subsector, carrying out spinning, weaving, dyeing and finishing and with its own design team. This is a large enterprise, located in Catalonia.

Firm B A textile firm in the carding and pinning subsector. This is a small-to-medium enterprise, carrying out the full cycle, and with its own marketing section. It is also located in Catalonia.

Firm C A clothing firm carrying out the full production cycle in the cotton subsector, from spinning to clothes manufacture (including weaving, dyeing, finishing and knitting). This is one of the country's largest firms, located in the Autonomous Community of Valencia.

Our choice of contacts within the firms analyzed was based on the criterion that their work should be directly linked with the technical and human aspects of production; in one case this was the firm's technical manager, and in the other two the personnel manager.

The methodology applied in compiling the enterprise reports involved observing and analysing the jobs in question, supplemented by interviews with the workers doing those jobs and with managers in the departments and firms concerned. This fieldwork was carried out jointly

by the authors and our contacts in each firm.

This approach enabled us not only to compile the three case-study reports but also to derive a considerable amount of information from our contacts' wider knowledge regarding the conditions in and situation of other firms in the same area or with similar features in terms of size and/or products. This information was directly incorporated into the final report. The full reports on the three firms are to be found in the appendices.

The second phase of our work comprised a general survey of the sector covering the main topics in the three earlier reports. The purpose of this survey was not to obtain extensive first-hand information on Level 3 jobs throughout the sector; rather was it to provide a wider empirical backup to check whether the main matters observed in the three case studies could be combined in a hypothesis covering large parts of the sector.

To this end a general questionnaire was compiled dealing directly with some of the key issues relating to the characteristics and training needs of jobs at the relevant level of skill and knowledge.

The questionnaire was mailed to all Spanish textile and clothing firms, with the help of the employers' organizations in each subsector:

- Agrupación Española de Fabricantes de Género de Punto (Spanish Knitted Goods Manufacturers' Association),

- Asociación Española de Productores de Fibras Químicas (Spanish Artificial Fibre Producers' Association),
- Asociación de Investigación Textil del Proceso Algodonero (Cotton Textile Research Association),
- Gremio de Fabricantes de Sabadell (Sabadell Guild of Manufacturers),
- Federación Nacional de Acabadores, Estampadores y Tintoreros Textiles (National Federation of Textile Finishers, Printers and Dyers),
- Agrupación Nacional de la Industria Textil de fibras de recuperación (National Association for the Reclaimed Fibre Textile Industry),
- Federación Nacional de Empresarios Textiles Sederos (National Federation of Silk Textile Manufacturers),
- Agrupación de Género de Punto del Maresme (Maresme Knitted Goods Association).

In all 2300 questionnaires were despatched. Responses were received from 140 firms, covering 212 different production cycles.

Most of the firms responding were in Catalonia or the Autonomous Community of Valencia, the two regions where the industry is concentrated. However, responses were also received from firms in Galicia, Castille and Andalusia.

All sectors of the industry are represented, including fibre producers and the silk sector, but a detailed classification is difficult given that some firms carry

out several different production processes or work with different fibres. Figure 1 gives information on the responding firms, classified by subsector.

All sizes of firm are also represented; their distribution is shown in Figure 2. Figure 3 shows the distribution of firms by production process, though it should be borne in mind that one firm may carry out several processes.

As the figures show, our sample included all the various subgroups to be found in the sector. The similarity of the majority of responses to the questionnaire is indicative of several clear tendencies which provide a sound base to support the hypotheses formulated in the three case studies.

The third and final phase of our work comprised the analysis of all the material collected, the notes on the interviews and the results of the survey with a view to drawing up our final conclusions.

The presentation of the results is preceded by a brief outline of the characteristics and recent development of the Spanish textile and clothing industry; this is intended to provide a background against which the significance of the results can be better appreciated.

## 1. The Spanish Textile Industry

While the relative importance of the textile and clothing sector in the Spanish economy has declined somewhat in recent years, it remains one of the country's most important industries. Information from the Spanish Intertextile Council indicates that in 1985 the sector accounted for 8.1% of gross manufacturing output and 12.7% of manufacturing employment.

Table 1 gives the main macroeconomic indices for the textile and clothing industry in 1985-86.

The industry is concentrated in the Autonomous Communities of Catalonia and Valencia, these two regions accounting between them for 60% of employment and 70% of total output. Important subsectors in the Valencia region are hard fibres, reclaimed fibres, carpets, rope-making and clothing. Other Autonomous Communities in which the industry is represented include Andalusia, Castilla-La Mancha and Castilla-León, La Rioja, País Vasco and Galicia.

The industry is predominantly one of small firms. In 1984, the most recent year for which we have reliable data, textile firms with fewer than 50 employees represented 82% of the total and employed 28% of the sector's workforce, while those with over 250 workers accounted for 2.4% of the total and 27.6% of the workforce. In the clothing sector firms with fewer than



50 employees represented 63% of the total, employing 13% of the workforce.

The textile sector is undergoing a long process of restructuring. The effects of the international recession are compounded by the structural crisis in which the sector finds itself owing to developments in the world economic order since 1945. In this order Spain has occupied an position intermediate between the countries which possess advanced production technology and those where labour costs are low, whose standards of design, fashion and quality are lower than those of the Spanish industry but which base their competitiveness on price.

This traditionally large sector concentrates mainly on producing for the domestic market. It has been losing jobs since the 1960s, and suffers a major crisis of overproduction every time home demand falls.

Each successive crisis, since that of 1967-8, has nevertheless produced an impetus to renewal and an opening-up to foreign trade. In the 1970s the fall in demand, the rise in costs and the drop in investment put an end to the process of renewal and caused the industry to lag further and further behind that of other European countries.

In the early 1980s the crisis in the industry was aggravated by stagnating domestic demand, a saturated market, the difficulty of selling surpluses abroad (owing

to increasing international competition) and the impossibility of passing on rising input costs in higher prices (again owing to increased international competition and stagnant demand at home), resulting in a sharp fall in profitability.

The industry responded to this situation with a major renewal and investment effort aided by the Textile Restructuring Plan of the Ministry of Industry and Energy. This, together with the recovery in domestic demand, has produced an improvement in prospects in recent years, allowing the industry to face with some calmness the clearly adverse effects of the initial period of Spain's EEC membership, when imports rose rapidly and exports fell in real terms. Information from the Spanish Intertextile Council indicates that this foreign-trade position persisted into 1986, with imports rising by 27% and exports falling by 8.6% compared with 1985.

Broadly speaking, firms have responded to the various challenges facing the industry with one of three strategies. One group has opted for modernization and the maximization of value added, offering higher standards of design and fashion and better quality. Another, at the intermediate quality level, bases its competitiveness on making use of what cheap labour remains, either in the hidden economy or located a long way from the major manufacturing centres; this option is not incompatible with high-technology equipment or effective management and good economic prospects. Finally, there is a third,

intermediate, way, taken mainly by small firms, which offer products of the highest quality while making use of submerged labour markets. Between these options there is a whole range of possibilities reflecting the sector's heterogeneity, from highly competitive firms at one extreme to others facing serious problems of viability and with a poor outlook at the other.

The existence of a large hidden sector, which shows no sign of disappearing and which unofficial sources indicate may account for 30-50% of output, particularly in such subsectors as clothing and knitwear, may extend the life or help to maintain declining sectors, preventing the full restructuring of the industry.

The social effects of the changes which have taken place have been considerable. The high levels of unemployment that have built up constitute a grave social problem, aggravated by the lack of any very bright outlook for those who have lost their job. The textile sector is a mature one, unlikely to expand sufficiently to absorb this excess labour. Moreover, the sectors with some prospect of expansion do not need the type of labour that has suffered through the process of restructuring. To this must be added the fact that firms' workforces have remained frozen for many years and need to be rejuvenated, placing a further obstacle in the way of the reemployment of the older jobless. However, as table 1 indicates, there has been a slight recovery in employment in the textile sector (though not in the clothing sector) in

recent years.

Summing up, it is clear that hitherto renewal has largely meant the updating of equipment, but as we face the future EC membership implies a new challenge, that of quality. Some parts of the industry have already begun moving in this direction, but others will need to make a considerable effort even to reach the starting line.

Table 1. The Spanish textile and clothing industry:  
macroeconomic indices

OUTPUT	1985		1986	
	Mill. pesetas		Mill. pesetas	
Artificial fibres	120 000		115 000	
Textiles	834 000		911 000	
Clothing	849 500		925 950	
Total	1 803 500		1 952 350	
VALUE ADDED	Mill. ptas	% <sup>1</sup>	Mill. ptas	% <sup>1</sup>
Artificial fibres	36 000	0.4	36 800	0.35
Textiles	334 000	3.8	381 000	3.7
Clothing	343 000	3.9	387 000	3.9
Total	714 000	8.1	804 000	7.95
EMPLOYMENT	Total	% <sup>2</sup>	Total	% <sup>2</sup>
Artificial fibres	9 000	0.4	9 200	0.3
Textiles	172 200	6.6	173 000	6.6
Clothing	146 000	5.7	143 000	5.5
Total	327 000	12.7	325 200	12.4

1. Percentage of gross industrial value added.

2. Percentage of industrial employment.

Source: Spanish Intertextile Council.

Figure 2. Size of firms responding to questionnaire (in percentages)

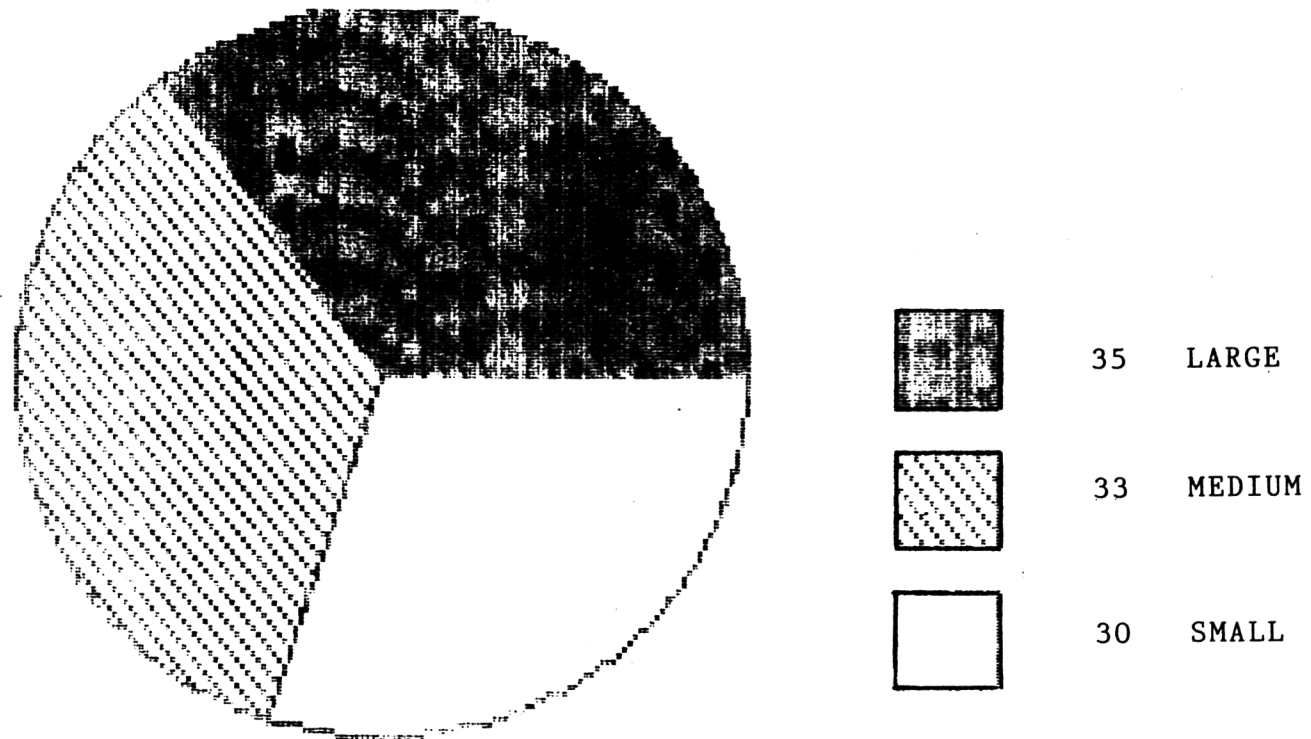
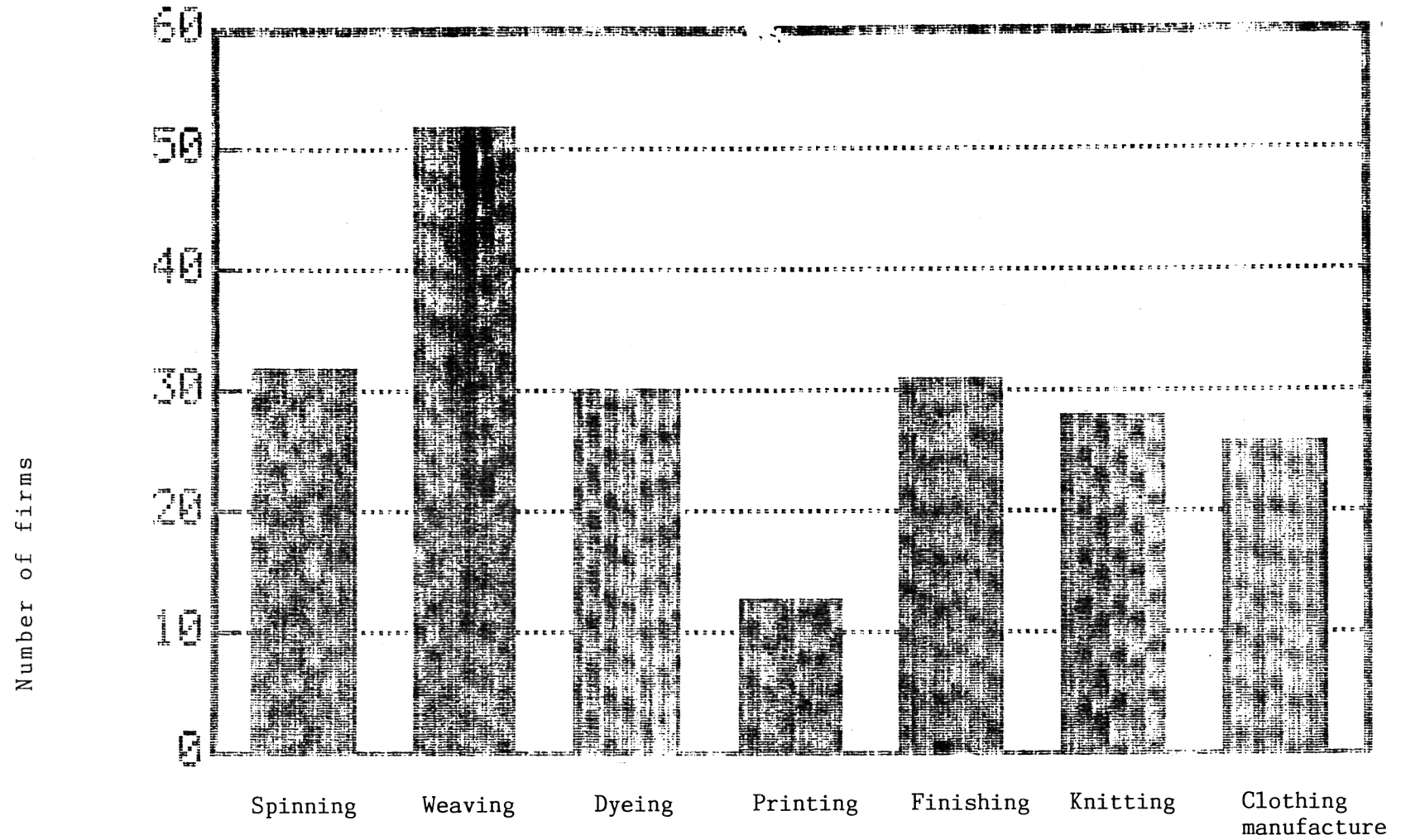


Figure 3. Distribution of firms responding to questionnaire (total responses 212)



## 2. The role of intermediate personnel in organizational and technological change

Defining the range of job categories which can be included in Level 3 in the Spanish textile and clothing industry presents certain problems. The first is due to the fact that the classification by level is geared to international terminological harmonization, mainly for purposes concerned with education and the mutual recognition of qualifications, and does not currently represent an operational framework for organization and management in industry. The concept of "level" is not one generally used by firms, and it is therefore necessary to establish an equivalence between such levels and actual business classifications. This equivalence is not always easy to determine, given that business classifications generally extend over several levels, making it difficult to determine the boundaries between levels.

The second problem relates to the peculiarities of the Spanish situation. In order to define the content of each level the system of classification assumes a correspondence between the training course content and ranges of occupations. In the case of the Spanish textile industry this correspondence is not found, since the range of jobs comprising Level 3 (occupations of a technical nature which can be carried out autonomously and/or entail other responsibilities for programming and coordination) are performed by workers whose training falls well below that implied by Level 3 (compulsory plus



technical or vocational schooling and integrative technical training or secondary-level technical training).

Faced with a need to choose between the training criterion and the work criterion for the analysis of the Spanish situation we have opted for the second, since we believe it is more easily related to the situation in other countries and fits in better with the criteria followed in the classification by level.

For these two reasons we have felt it appropriate, before analysing Level 3, to outline the category in which this range of skills and knowledge is to be found, following the conceptual structure in use in industry. The majority of personnel working at Level 3 (taking account of their autonomy and/or other responsibility for programming or coordination) are regarded by firms as intermediate staff. However, this category extends well beyond the limits of Level 3 and may include (depending on the size of the firm) Levels 4 and 5.

We have therefore analysed all the jobs done by intermediate staff, going on to study in greater detail those which can be classed as belonging to Level 3. This chapter gives a general introduction to the problems affecting this group of employees in the textile and clothing industry from the viewpoint of personnel management policy.

New technologies, the emphasis on quality and design and

the movement towards more flexible production are the factors which have turned the industry's restructuring into a major process of reorganization within firms and in their labour skill requirements.

Despite having been one of the cradles of the first industrial revolution, the textile industry has traditionally been labour-intensive, with production being founded on empirical and practical rather than on technical foundations. Posts of responsibility within firms have generally been held not by technical experts but by individuals with extensive practical experience.

It is only in the last few years that the sector has undergone a technical transformation in the sense of a shift from practical and empirical approaches to more technical approaches.

In this situation intermediate personnel have played a key role, providing the vital supports on which firms have depended in their strategies of modernization. We begin by considering what organizational and technical changes have already taken place and are expected in the future, going on to analyse the policies which firms have followed in respect of this group of employees.

#### 2.1. Technological and organizational innovations

The more advanced firms have already achieved a high degree of technological modernization, initially in the area of production machinery and later in all areas with

the introduction of automation and computerization. This second stage began very recently and is still underway. Firms in the rest of the industry are currently engaged in a costly process of machinery replacement involving considerable financial problems.

On the organizational side the situation is less clear: the industry has yet to resolve some of the principal problems facing it, as witness the fact that some firms, despite having achieved good technological standards, find that their productivity is still low compared with that of firms in other countries.

In general the spinning, weaving and knitting subsectors have attained a higher technological level than the dyeing, preparation, finishing, printing and clothing subsectors.

The spinning industry is highly automated, with the reclaimed fibres and cotton and wool spinning subsectors in a better situation than other fibres. Technological innovation has involved an increase in operating speeds, the introduction of computerized control systems and process, production and quality control. Simple mechanical controls are giving way to complex electronic mechanisms, requiring new and more highly qualified operatives. Electro-pneumatic control systems are being introduced. Process automation has made spectacular advances, with the almost complete disappearance of manual transport within factories and rapid progress in the

robotization of manual operations.

Machines have increased their output but lost some versatility. This reduction in versatility necessitates adapting the machinery, to the extent possible, to the particular requirements of each firm and to new market situations. The new machines demand yarn of higher and higher quality if they are to work with proper efficiency.

It should also be noted that conventional spinning systems are maintaining their position vis a vis Open End systems, with significant increases in spindle speeds and reductions in noise output and energy consumption.

The weaving industry has also undergone significant modernization in recent years; 65% of looms are now shuttle-less. In this case technological innovation has involved the refinement of the shuttle-less loom and the installation of microprocessors for control and data-supply purposes.

The innovations shown at ITMA-87, in the weaving subsector, are aimed at consolidating the application of electronic control and monitoring by microprocessor to all weaving equipment. In general great increases in operating speeds are being achieved, with weft feed rates of up to 1800 metres per minute. Some looms now include robotized weft repair, with something similar being initiated for the warp.

All Jacquard machines now have electronic mechanisms allowing a considerable increase in pattern storage capacity.

Firms producing short runs have difficulty in adopting recent technological advances geared to large-scale outputs.

Changes in the dyeing sector have involved the application of programming using microprocessors. Fully automated colour systems have been introduced in dyeing and printing. Operations are often monitored using closed-circuit television, making it unnecessary for the operator to move around.

With regard to laboratory apparatus considerable efforts are being made to obtain multi-purpose equipment capable of carrying out various functions in an integrated and automated fashion. Various computer-assisted systems are available aimed at achieving centralized management of the data obtained by the different types of laboratory equipment.

The growing cost to manufacturers of research and development has encouraged a concentration of effort through associations, mergers or collaborative schemes involving different manufacturers of laboratory equipment for the textile industry.

Firms which have opted for innovation in design are

introducing computer-aided design (CAD) at a rapid rate. While few have applied it so far, it is expected to be in general use within two or three years. The first software development firms focusing on the textile industry are now being established in Spain.

In large and medium-sized firms the computerization of administrative processes is now at a fairly advanced stage and is being extended to marketing and production planning departments.

The situation in the clothing sector is somewhat different, in that the production process proper has as yet been little affected by technological innovation, other than in particular cases. The electric sewing machine, of varying degrees of sophistication, is still the norm. At certain points in the production process programmable automatic machines have been introduced, including ironing machines and machines for making pockets.

Where major changes have occurred is in pattern-making (which has been computerized) and cutting (which has been automated). Nevertheless, the number of firms which have introduced them remains small, and for the most part they are large undertakings which produce long runs and thereby make the investment in technology pay.

These various technological innovations, coupled with the changes in firms' production and marketing strategies,

have given rise to new skill requirements and major alterations in occupational profiles.

In some cases there has been a radical change in working methods and equipment. This applies to CAM, pattern-making and cutting in the clothing subsector, all of which have seen a shift from manual activity to computer operation. This implies a need for apprenticeship in the new working equipment and a change in the concept of work itself, with the need for new knowledge and skills.

In other cases activities relating to existing machinery have been automated: we have seen the introduction of automatic loading and unloading, the automatic coordination of different machines, the robotization of certain operations (such as weft repair), and so on. This has meant a change in the relationship between people and machines, with a strengthening of control and monitoring functions and a reduction in the extent of human intervention in the task in hand. In this situation firms have tended to use operatives mainly for the control and monitoring functions, concentrating the more professional tasks in the hands of supervisors and foremen.

Automation has also increased the number of electronic components in firms' equipment, necessitating an apprenticeship in a new technology hitherto virtually absent from textile factories. In many cases the machines need to be programmed in the factory itself,

necessitating another form of apprenticeship, namely in computer languages for programming and the interpretation of the data obtained.

The increasing speed of machines has rendered them less versatile and more vulnerable to problems affecting quality. A mistake or an incorrectly set machine can ruin many metres of yarn or cloth. The machines need raw material of high quality if they are to run at high speed, and this raises issues of quality control and the adaptability of equipment.

Quality control requires both laboratory installations and other equipment capable of making the necessary analyses and an organization and workforce geared to detecting and remedying problems at the earliest moment.

As machines' versatility declines the diversity of products is tending to increase, requiring machinery to be adapted to the particular needs of individual firms. Trained workers are needed to carry out such adaptation, albeit frequently even this is not enough and research and development facilities, within the firm or elsewhere, are required.

As new machinery has been introduced greater attention has been paid to energy costs, reflecting the general endeavour throughout industry to reduce energy consumption and waste. This requires specific training for the technical staff responsible, notably in the maintenance



department, and gives rise to a new occupational profile, that of the energy manager.

Increasing attention is also being paid to environmental pollution (by industrial sewage, smoke, noise, dust etc.). Here again the technical staff responsible for production require specific additional training.

Finally, certain innovations such as CAD and improved finishing techniques help increase the flexibility of production, making it possible to diversify output and shorten production runs. This new production policy is associated with greater organizational pressure and pressure of work on those specialist workers who fulfil an intermediate role in the hierarchy of responsibility.

Recapitulating, we can say that organizational and technical changes in the sector have given rise to new skill requirements at the intermediate level which can be summarized as a need for greater expertise (both practical and theoretical) in the individual's own field, training in new techniques (involving electronics and computers) and knowledge of the control and operation of the new machines. There is greater responsibility for quality control, requiring technical and organizational knowledge and implying an increased workload.

## 2.2. The role of intermediate staff

In dealing with the various changes described firms have sought to adapt their labour force to the new

organizational and skill requirements. They have cut their workforces, by means of negotiated reductions based on early retirement or special incentives, by not replacing workers who have left or retired, and in some cases by more traumatic means (redundancies) or by not renewing the contracts of temporary employees.

In general firms have not taken on new employees (with the exception of higher-level technical staff or in highly specialized areas such as design) and the average age of workers has risen as a result. Recently there has been a tendency to take on young employees with a view to rejuvenating workforces.

In this situation firms have had to rely almost exclusively on their existing employees in carrying out internal restructuring, adopting a policy of internal promotion to replace intermediate staff who retire or move elsewhere.

This has put considerable pressure on such staff, since where a firm did not have employees in a position to undertake supervisory work they had to seek to recruit them from elsewhere. This generated a situation in which firms sought to protect their intermediate staff from being "poached", leading to pay increases and at the same time reinforcing the position of such staff within the firm.

The other factor which has helped to increase the importance of intermediate staff is that this group was

already the most highly skilled, on account of earlier rationalization policies, even before the process of transformation within the sector; so that when the changes began it was this group that offered firms the best guarantee of adaptation to the new situation.

This policy based on intermediate personnel nevertheless presented certain problems related to the sector's labour management model.

Up to the 1980s it was normal for personnel management policy to be founded on a category of skilled labour which coincided with intermediate personnel (in that there was virtually no skilled labour which did not have some form of authority or responsibility) and on a category of specialized labour which had no specific skills or was semi-skilled.

The first group comprised a category of labour who had learned their craft from the preceding generation. This reflected the personnel management policy current in the first third of the present century, when crafts were learned through a long process of apprenticeship within the firm and the crafts themselves were specialized and clearly defined. In that period crafts were based on the development of certain manual skills and on practical knowledge and experience of a mechanical nature regarding the operation and functioning of machinery.

The traditional concentration of the industry in certain

parts of the country facilitated the transmission of experience and the training of an adequately skilled workforce by the method of practical experience. It must also be borne in mind that this approach was current at a time of rapid economic expansion in Spain, coupled with a great scarcity of skilled workers, so that it was necessary to produce an adequately skilled workforce with great speed.

It was at this time (the 1950s and 1960s) that a limited number of craft workers monopolized the greater part of the skills needed and thus formed an indispensable group performing a key supervisory role within firms.

It is very largely this group on which the whole of the period of expansion in the 1960s was based and which now occupies the posts of intermediate responsibility in the industry. However, these workers' expertise was of the kind needed in the earlier period, which was characterized by a slow rate of technological modernization due to the political, social and economic conditions in which Spain's development took place; they thus have a very low level of education, the majority having received elementary schooling only or none at all, and their expertise is very much limited to their own experience.

Below this intermediate group are the specialist workers, who for the most part migrated to industrial areas in the rural exodus of the 1960s. These workers, lacking education or training of any kind, learned how to do their

jobs at a time when work was no longer organized on the basis of traditional craft concepts but of a more specialized division of labour, and as a result they have been unable to acquire a full range of craft skills through practical experience.

At the same time the low pay levels in the textile and clothing sector meant that in the parts of the country which experienced the greatest industrial growth in the 1960s the ablest and most ambitious male workers left to work in other industries, where similar levels of skill were rewarded with higher levels of pay.

This model of labour management has produced a gap between the generation currently occupying positions of intermediate responsibility and the level of operatives, to such an extent that many firms say they have no employees able to replace their intermediate staff.

The available information indicates that the situation varies with the characteristics of the local labour market. Firms in areas of limited labour supply, remote from the major industrial centres, have had to develop labour policies based on their own internal market. This has involved them in training the workers they needed, and as a result they do not now suffer from the "generation gap" to the same extent (though they do have other problems resulting from lack of training).

However, this approach to labour management is now

reaching crisis point for a number of reasons. First, a good craft worker does not necessarily make a good supervisor, particularly when that individual's training has had to be improvised owing to the lack of skilled and qualified staff. The ability to exercise authority, take decisions etc. does not always coincide with the skills and capacities of the good craft worker.

Second, the low educational level of existing intermediate staff makes it difficult for them to adapt to new skill requirements. Their overdependence on experience, albeit a vital factor on which the entire expertise of the Spanish textile industry is based, leads to rigidities when they need to adapt to changes not just of a technical nature but also in working methods.

In most cases this deficiency is not immediately visible, since firms have adjusted to the workforce they already have, albeit with the use of external services or complicated internal reorganizations. In this way they have remedied the deficiency, achieving apparently normal operation. This makes it difficult to take the decisions needed to deal with the problem.

Third, it is no longer possible to train the workers who will replace current supervisory staff using the methods applied hitherto: the supervisors and skilled workers which the textile and clothing industry will need in the near future cannot be trained solely by the method of direct experience. Indeed, many firms do not even have

workers who can be trained to fill the "generation gap" mentioned earlier.

In this situation the position regarding skill and staff training policies in the sector can be said to be in transition between two models: that current up to the beginning of the 1980s, and a new model, now gradually taking root, which may be described as one of professionalization, making use of workers who have had both a full training and experience on the job. This model is described in subsequent chapters.

This situation of transition is reflected in a certain ambiguity in firms' definitions of their labour management models, which tend to oscillate between continuity from the earlier model and the new direction just referred to.

### 3. Occupational profiles at Level 3

In analysing the intermediate levels account has been taken of four factors which determine their characteristics. The main one is size, not only of the firm as a whole but also of its productive units, i.e. factories. The larger units have a more complex form of organization whose intermediate levels include jobs which may be regarded as managerial in a smaller unit. The structure of skills and qualifications at the intermediate level in a large firm depends on whether it is organized in a single factory or has several smaller factories producing the same product: in the first case the structure will be more complex and the intermediate levels broader, while in the second the intermediate levels will be narrower and will comprise fewer jobs, albeit repeated in different factories.

Defining the size of firms also presents difficulties in the textile industry, given the great variety of productive processes which it includes. For this reason the size of the firm is specified in each case in terms of its productive capacity and not only of the size of its workforce, since the latter does not adequately reflect a firm's size or importance.

A second factor to take into account is the productive cycle which the firm undertakes. The structure of the intermediate levels varies with firms' productive characteristics, so that the analysis must be differentiated depending on the subsector with which we



are concerned (spinning, weaving, knitted goods, clothing etc.).

A third factor, of lesser importance, affecting job numbers rather than characteristics, is the type of product, given that standard products and long runs allow greater organizational simplicity than do more sophisticated goods or, above all, short production runs.

Finally, forms or styles of organization and labour management also clearly influence the characteristics of the intermediate levels. While both products and technical equipment impose a certain similarity on all firms which share the abovementioned features, there are nevertheless differences between firms due to purely organizational factors. These differences very often simply reflect the organization's adaptation to the persons who make it up, and in some cases correspond to particular organizational policies.

In what follows we describe the jobs making up the intermediate levels following the model of the firms that were studied in depth for each of the production cycles. In each case we add the variations observed in different firms due to the four factors mentioned earlier and the general information obtained from the overall survey of all firms in the sector.

### 3.1. Spinning

We consider both a firm concentrating solely on spinning

and one engaging in several different production cycles. We take account only of the spinning process itself, excluding the dyeing processes which in many firms are associated with spinning (when the yarn is dyed). On average the firms produce 10 000 kilometres of yarn a week, both combed and carded wool and cotton.

### 3.1.1. The supervisor or general shift overseer

This job is at the heart of all textile firms.

Hierarchically it is subordinate to the manager or technical manager, depending on the size of the firm.

The supervisor receives production orders and is responsible for their execution. He has responsibility for production, quality and personnel, deciding the process to be used and determining the technological parameters of the entire process. He distributes the work and checks its quality. In many cases the laboratory is under his direction. He carries out the functions of personnel manager in his department.

The supervisor has a high level of practical skills. He is fully familiar with the entire practical process of production and is able to organize it. The technical and organizational efficiency of production depends on him.

In the firms studied the job is undergoing a certain evolution. In some firms there is a supervisor in charge of each department, all of them subordinate to the firm's production manager, whose functions are of a managerial

nature rather than the direct organization of production. In these cases the supervisor acts as departmental manager, albeit without forming part of the firm's management team. Under him are the foremen for each shift. The supervisor's responsibility for the three shifts implies full commitment to the firm and a very long working day; he is available 24 hours a day to deal with any problems that may arise. This form of organization was found in the more traditional firms of medium size undertaking several different production cycles in the same factory.

In other firms the supervisor is the general shift overseer, i.e. there is no overall supervisor subordinate to the factory manager but rather as many supervisors as there are shifts. In such cases the job is more organizational and practical, with the factory manager having a greater say in defining the technical characteristics of production. This organization was found in newer firms concentrating on only one production cycle. In this structure one of the three shift overseer jobs is often omitted, so that just two supervisors cover the three shifts by extending their working day. In some firms, in contrast, all three levels are found: technical manager, supervisor and shift overseer.

The first model appears to be the classic form of organization in a textile firm of medium size, while the second represents a development towards a different division of responsibilities between supervisors and

technical directors. The two approaches currently coexist, depending on the type of product and the organizational and personnel policies of the firm in question. Nevertheless this twofold role of the supervisor is indicative of the job's evolution towards the borderline between that of the general shift overseer and that of the technical manager.

The technological and organizational changes that are taking place, with the trend towards continuous automated production in the spinning industry, are in some cases pushing the supervisor in the direction of the shift overseer, with a more practical technical manager taking on some of his former functions, while in other cases he is assuming more of a technical management role contrasting with the purely practical responsibilities held in the past.

In general supervisors are aged over 50, have had a long career in the industry (over 20 years), have some seniority in the firm and have a mechanical background (i.e. are former mechanics or fitters who have achieved promotion), though without necessarily having had any formal training in engineering or textile trades. Their training has normally all been practical and on the job. Of the nine supervisors in the three firms studied, only one had a university qualification in textile engineering, while two had received vocational training in mechanical engineering and the remainder had had no training beyond elementary education.

### 3.1.2. The foreman

The foreman is subordinate to the supervisor or shift overseer. In spinning mills there are usually two foremen in each shift, one responsible for preparation and one for spinning proper, though this will depend on the complexity of the work and the size of the firm. In one of the firms studied, which manufactures a very small number of types of thread in long runs, basically for internal use, there is only one foreman per shift who covers both preparation and spinning and also dyeing.

The job of the preparation foreman is to distribute the work among the various machines, calculate the proportions of simple mixtures on the basis of standard parameters (the more complex ones being done by the supervisor), check the state of the machines and notes on production control and bonuses, and direct the work team.

The spinning foreman is responsible for directing batch changes and lubricating and cleaning the machines, for the material of his section and yarn insertion, for collecting waste and for directing the team of spinning operatives.

The role of the foreman seems fairly stable and his occupational profile unlikely to change. The increasing automation of spinning processes notwithstanding, the presence of a skilled person to execute the orders of the supervisor or shift overseer will continue to be needed. In some cases it will be possible to dispense with one of

the two foremen, though only where the volume of work or relatively standard nature of the product permit this. Some firms concentrate long-run and less complex production in the night shift or fourth shift, thus dispensing with one or both of the foremen working on the other shifts. Production is then under the responsibility of a general night overseer and a number of experienced operatives.

As well as technical skills the foreman's occupational profile also includes command skills, since it is he who directs the spinning operatives.

In general foremen are of middle age (40-50), have worked in the industry for many years (more than ten) and have risen from the ranks of spinning operatives or technicians. Of the 14 foremen in the firms studied, only one had received a full vocational training in the manufacturing field and was following a textile training course; the remainder had had only elementary education.

The foremen have assistants who help them on the mechanical side, adjusting the machines. In view both of the content of their job and of the fact that they have no authority over or responsibility for other workers, we feel that they should not be included in Level 3. In fact they are operatives who assist the foreman but have no kind of autonomy in their work. The trend is to have only one assistant for the two foremen on the day shifts.

### 3.2. Weaving

This includes not only the loom section but also the winding and warping sections. The descriptions of categories are based on a firm with a daily production capacity of 5 500 metres of cloth, with some 40 shuttle looms, producing decorative goods. Its organization will be compared with that of another firm producing a very small number of types of cotton cloth in long runs, with a capacity of 50 000 metres per day and some 190 pincer looms and 40 shuttle looms.

#### 3.2.1. The supervisor or general shift overseer

Supervisors play the same role in weaving as in spinning, with the same prospects of movement between the technical manager of the factory and the shift overseers. Their main function is to organize production: they distribute the work, make studies of production, improve methods, manage the computer control of production where this system is installed and direct the laboratory. In some firms the supervisor controls work bonuses and directs the work teams in his department. Where he exercises the functions of shift overseer his personnel management role stands out.

Where products are varied and complex the supervisor may be assisted by a collaborator at foreman level in the distribution of work and in the warping section.

The supervisor spends more than half of his time on the shopfloor. In almost all the firms consulted (and this

also applies in other departments, not only in weaving) the supervisor keeps certain tasks for himself, depending on his personal interests. He may, for example, draw the lettering for the selvedge; in spinning he may undertake the maintenance of the combs or take direct responsibility for lubricating the machines. This seems to us quite typical of the occupational profile of the supervisor, his empirical training and practical craft, his thorough knowledge of all the operations and processes of his department; the supervisor retains his interest in his own craft, whether as technician, spinner or weaver, and keeping certain tasks for himself helps to relieve the tension of his position of responsibility for the department. It is not unusual to hear a supervisor say that he likes to get his hands dirty. This combination of craft and practical experience is greatly valued by firms, and is difficult to obtain in current conditions.

Sometimes keeping particular tasks for himself reflects a certain lack of confidence on the supervisor's part in the skill of his subordinates, a point to which we return later.

The personal characteristics of the weaving supervisor are similar to those of his opposite number in the spinning sector: in the latter part of his working life, many years of experience in the industry, and no specific vocational training. Of the four supervisors studied only one had any technical vocational training, while the remainder were former untrained technicians who had



learned their trade on the job.

### 3.2.2. The foreman

The foreman's main function is technical, in that he is responsible for giving the order to start the machines for the production of a batch: he sets the pattern, mounts it on the loom, makes the sample, adjusts the machine to suit the batch and generally, before giving the order to start production, checks with the fabric specialist, the supervisor or the technical manager that the sample is satisfactory. This is a skilled executive function in which all parameters are defined.

The number of foremen per shift depends on the number of machines. In the two firms studied there is one foreman for every shuttle loom, while in the case of pincer looms the ratio is one foreman for every 100 machines. Depending on the number of runs and their complexity there may be other foremen to coordinate the work, or specifically for the warping sections.

As in spinning, the occupational profile of the foreman seems unlikely to change much in the foreseeable future. Thanks to the greater speed and sophistication of the looms, and their growing automation, the spinner has become more of a custodian of the machines; the real craft of spinning is now concentrated in the foreman, who has become the true modern spinner complementing the traditional craft with the new skill requirements.

The reduction in the number of spinners, as the ratio of spinners to looms has fallen, has reduced the foreman's command function and tended to make him the leader of a team in which he is helped by two kinds of assistant, namely technicians who help organize batch changes and spinners who keep watch over the machines while they are running.

On average foremen are aged around 40 and have been with their firms for more than ten years. They have received no vocational training, having completed only elementary education. Of the 18 foremen in the spinning undertakings studied, none had any vocational qualification.

### 3.3. Finishing

A distinction may be made between the dyeing section and finishing, the latter including mending and texturing. In what follows we refer to a dyeing and finishing section with a dyeing capacity of 2 000 kilos of thread and 1 500 metres of cloth per day and a finishing capacity of 5 000 metres per day.

#### 3.3.1. The dyer

The job of the dyer is at the upper limit of Level 3, on account both of its technical content and of the dyer's qualifications (often a university qualification in chemistry).

The dyer's job is to direct the dyeing process. It

involves deciding on the process to be used in each case, defining the the colour parameters and organizing the work. It is a job with considerable autonomy: only when decisions have to be taken on colourings, their prices and new products is there a need to consult the directors or in some cases the finishing supervisor.

In the case of yarn dyeing, the dyer has laboratory assistants and a weigher and operatives to handle the product. These workers cannot be classified at Level 3. The laboratory assistant and the weigher are generally at a level above that of the operative and similar to that of the supervisor's assistant.

In larger dyeing establishments, with a capacity greater than 300 pieces per day, there is usually a head dyer with an assistant who is also a dyer. In such cases the head dyer should perhaps be regarded as belonging to Level 4 or 5, depending on the firm's organizational structure, and the assistant as belonging to Level 3.

As has already been mentioned, dyers often have a university-level qualification in chemistry, though in some cases they have simply undergone a long period of on-the-job training; such training is generally very prolonged, and specialized in the type of product produced by the firm.

Of the two dyers in the firms studied, one had a university qualification in chemistry and the other had

vocational qualifications in the engineering field and had undergone a long period of apprenticeship in the firm.

The dyer's position in the firm appears stable, and no major changes in his occupational profile are expected.

### 3.3.2. The finishing supervisor

Dyeing and finishing sections usually have some degree of autonomy. At the head of the finishing section is the supervisor, whose characteristics are similar to those of his opposite numbers in other sections.

In firms in the wool industry a distinction is made between the wet section and the dry section. In firms of medium size the supervisor coordinates the two sections, each of which is headed by a foreman. In large firms, however, there may be a supervisor for each section, subordinate to a technical manager.

The job of the supervisor in this section is to organize the work on the basis of the production orders he receives. He makes studies of processes, production, methods, applications and the development of types of finishes. It is he who decides what products to use. He has considerable responsibility for the final quality of the product and therefore directly supervises quality control. He generally has many links with the marketing and design departments, discussing customers' wishes and the technical feasibility of designers' proposals. He may even have direct contact with customers to discuss

quality problems. To all these functions must be added those of personnel management in his section.

Of the two supervisors in the firms studied, one had a university qualification related to textiles and the other had no specific training (though he was a self-taught electronics expert). This disparity in training levels reflects the complexity of the job and the twofold evolution, already mentioned, towards a more technical or more practical profile, depending very much on the type of product and the organization of the firm.

### 3.3.3. The foreman

The foremen in the wet and dry sections have similar functions, at a slightly lower level than the foremen in other sections. These are jobs with little autonomy, in which organizational tasks alternate with others of a manual nature that might be performed by an operative.

In the wet section the foreman distributes pieces between processes, organizes the manual movement and distribution of pieces, and prepares solutions or products for degreasing, lubricating and cleaning the machines. He has either a very small team or no immediate subordinates at all. In matters relating to problems or to new products responsibility rests with the supervisor.

The foreman's functions in the dry section are similar, though he has greater authority since he has a larger team under his direction.

In fact the foremen in this department are skilled craftsmen with some authority whose job may be located on the borderline between Level 2 and Level 3. Greater automation of finishing processes may lead to the merging of the two sections under one foreman.

Of the four foremen studied, none had received any type of specific training beyond elementary education. They were former unskilled workers who had risen to foreman level.

#### 3.4. Clothing manufacture

The firm to which we refer in what follows produces some 3000 items per day and has a workforce of 230-270, depending on the season. The organizational structure of a clothing firm is fairly simple, with the section heads constituting Level 3. This chapter is concerned only with the actual process of production and does not consider stores, design, administration or marketing.

The usual sections are cutting, production, laundry and checking. A common characteristic of the jobs in question is the predominance of management functions over those of a strictly technical nature.

The functions of the head of the cutting section are mainly practical and organizational, involving checking the quality of the cloth and carrying out cutting orders, taking great care over the organization of the work to ensure that order is maintained despite the great variety

of patterns and fabrics to be cut. This is the main task of the head of the section, whether it is equipped with manual, semiautomatic or automatic systems. In the case of automatic systems, clearly, the section head must be familiar with the operation and programming of the equipment.

The heads of the production line also have a basic function of organizing the work and assigning tasks to different workers. Depending on the scale of the operation and the way the work is organized, the line may be divided up into a greater or lesser number of sections with a different person responsible for each. Given that the workers are highly specialized in a very limited number of operations and the heavy emphasis on efficiency, the section head has to make decisions practically every day or every week (depending on the length of the production run) on the assignment of jobs to workers, depending on the type of production order coming in and the workers available. The importance of the human factor (due to the low level of technology involved in the processes) means that these functions are vital: the achievement of production targets at the requisite level of quality depends in large part on the section head's leadership and organizational skills.

There is an increasing tendency to add responsibility for quality control to these organizational functions. Several of the firms visiting are tending to reduce their quality control departments and to integrate

responsibility for this work into the production process itself.

The laundry section, in those firms which have one, is more technical in nature, especially in those cases where washing is an integral part of the finishing process. However, the section head has little autonomy and little responsibility for making decisions on the technical aspects of the section's work. Generally he concentrates on the organization of the work and the execution of specified processes.

The head of the final checking section is concerned with quality control and very careful organization of the work. It is a task of great responsibility involving constant decision-making.

Among the personal characteristics of such supervisory staff in the clothing industry, one which stands out is the lower average age compared with the textile sector: generally they are aged between 30 and 35. Even though the vast majority of clothing workers are women, the section heads are generally men. Finally, they generally have no specific vocational qualifications, having received only elementary education.

Consideration could be given to including in Level 3 the heads of departments in clothing firms. The firms we visited regard these staff members as managerial, and thus as having responsibilities going beyond those of Level 3;



however, some of their functions correspond to those of the supervisor in textile processes (e.g. the person in charge of the finishing department or section, which in some firms includes washing, final checking and stores, the maintenance section or, in some small and medium firms, the production section).

In our view the persons in charge of finishing sections and the heads of maintenance should be classified in Level 3, given the practical nature of their work and the level of their training and because even though in some cases they form part of management teams their role in the management of the firm is not one of great responsibility.

In the other cases, their inclusion in Level 3 will depend basically on the size of the firm. We return later to the subject of the situation of this type of firm.

### 3.5. Maintenance

The maintenance department is one of those which have changed most in recent years: large teams of craftsmen, with workshops equipped to deal with the great majority of problems that might arise, have been replaced by small teams covering the essential minimum only.

The firms studied operated one of two types of maintenance policy, depending on their location. Firms in traditional textile areas with a high concentration of firms in the industry have a policy of subcontracting maintenance work to outside workshops; indeed, 80-90% of

maintenance is carried out by outside contractors. The concentration of the industry in such areas has favoured the development of a wide range of maintenance and repair services, specializing in both plant and equipment, which can respond quickly and effectively to firms' needs. In such cases the textile firms themselves have cut their own maintenance teams to the minimum and have closed their workshops.

In contrast, firms located outside the traditional textile areas - for the most part in agricultural regions, far from any industrial centre - cannot rely on the availability of external maintenance services, while their suppliers' after-sales service may take time to respond should it be needed; for these reasons they tend to carry out their own maintenance. In such cases the maintenance teams are larger, though still not on the scale common in the past.

Firms which carry out their own maintenance tend to accord greater importance to this function and to operate a more exacting policy in the matter compared with those using outside contractors.

In general, however, textile firms depend for the repair of their equipment either on their suppliers or on local mechanical and electrical workshops.

Few firms undertake systematic preventive maintenance, and in general no work is done on machines until they break

down. Prevention is limited to regular cleaning and lubrication.

When a machine breaks down it is the foreman who makes the first attempt at solving the problem. If the breakdown is not of a simple, common type, the departmental supervisor is called in. The supervisor's experience and practical knowledge of machinery means that he is the person who most commonly carries out repairs. If he cannot solve the problem the maintenance team is called in. If the problem cannot be identified or the repair cannot be made with the resources available within the firm, outside help is obtained. Often it is the departmental supervisor who notifies or calls in such outside help directly.

This type of maintenance policy is based on the supervisor and on not the existence of skilled specialists.

In this area the same personnel management pattern is followed as was observed in other departments. All responsibility is concentrated in one highly skilled individual, with practical knowledge and extensive experience, who directs a team of semiskilled workers without vocational training. The intervention of the skilled individual (in this case the supervisor) is essential, so that a considerable proportion of his working time is absorbed by tasks which in principle ought not to be his responsibility.

These days maintenance teams have the job of dealing with problems which arise in the firm's plant as a whole, rather than in the repair of machinery. This situation has arisen as a result of the high rate of technological innovation: the maintenance teams lack the skills needed to repair modern equipment, while the great variety of machinery and processes in a textile factory makes it unlikely that a single maintenance team could deal with the full range of repairs.

It is thus to be expected that if firms continue with their present maintenance policies this department will tend to disappear as such and will lose its autonomy and be absorbed into another department. This was the case in one of the firms studied, where maintenance is to be the responsibility of a materials purchasing department which also looks after services within the firm (cleaning, drivers, etc.). The post of the head of the maintenance department will be abolished, leaving just a foreman or team leader.

Currently the members of maintenance teams are generally workers without vocational training who have acquired their trade through experience. Those in charge of the departments in the firms studied had received varying training, ranging from a university degree via engineering training to none at all.

### 3.6. Stores

Textile firms' stores can be divided into two types, raw

materials and finished products. Whether the person in charge of stores can be regarded as belonging to Level 3 depends on the volume of goods coming in and going out, the number of his subordinates and his administrative functions. Depending on these variables, the firms visited regard the heads of their stores as intermediate staff or simply as operatives with a certain degree of responsibility.

The functions of the head of stores are to direct his team, organize the stores and keep track of incoming and outgoing goods. The great variety of products manufactured means that in some textile and clothing firms these functions involve a high level of skill and responsibility. The increasing use of information technology in store administration means that the individuals in charge have to be able to operate computers; where this happens such persons can be classified at Level 3.

In very large firms the head of stores may have technical or managerial responsibilities which place him above Level 3. In such cases Level 3 may be considered to comprise those in charge of particular products or sections of stores.

In general the training level of heads of stores is fairly low (elementary schooling). For the most part they are methodical and responsible individuals, but without any specific training for their job.

### 3.7. Administrative processes

In this section we consider administrative processes narrowly defined, i.e. those relating to the firm's management, accounts, sales and personnel. We look separately at marketing, organization and design departments.

The organization of the administration of small and medium enterprises in the textile and clothing industry generally provides no scope for Level 3 jobs. The various sections or departments are directed by a member of the managerial staff assisted directly by Level 2 auxiliary personnel.

This type of organization is most clearly visible in general management, where the manager has at his disposition a number of secretaries and administrative staff without any intermediate personnel. Other sections (accounts, sales, personnel) are generally also organized in this way, but there may be variations depending on how the firm's management team is structured.

For example, where personnel functions are exercised directly by the general manager or owner, with help from external technical advisers, there is usually a clerk who undertakes personnel administration with some autonomy in the execution of his functions and with some help at his disposal.

Something similar occurs, albeit less commonly, in sales.

In accounts the practice is more common, with the bookkeeper occupying an intermediate position and regarding himself as second-tier management. Sometimes the more responsible aspects of bookkeeping are contracted out to external agencies or accountants' practices, in which case the clerk responsible for maintaining the accounts can be considered to belong to Level 3.

In larger firms there may be an assistant with responsibility in the management of a section or department (sales, accounts), who in many cases may be regarded as belonging to Level 3, on account both of the level of his training and of the degree of autonomy in his work. Under him he has only administrative staff with little autonomy, while his superiors are regarded as managers.

Such assistants are normally not technicians but clerks who have risen to positions of greater responsibility. They have generally received secondary education, whether academic or vocational (commercial practice, etc.); in a very few cases they have received some form of university or other post-secondary education. It is those who work in accountancy that are most likely to have received relatively extensive training in the commercial field or to have completed a first-degree university course.

It is thus not possible to draw general conclusions, since whether particular jobs in administrative sections can be assigned to Level 3 depends on each individual firm's

organization. Only in large firms can departmental directors' assistants be regarded as belonging to Level 3; in any event the borderlines are not clear, given that there is no clear set of functions that defines an administrative position at Level 3, and the situation depends on the type of organization involved.

The growing computerization of administrative processes is tending to consolidate this form of organization without any intermediate positions, since the reduction in staff facilitates the direct management of a department without the need for intermediate personnel.

### 3.8. Marketing and sales

Here a distinction may be made between the administrative side of marketing and the organization of sales. On the administrative side much the same comments apply as in respect of administrative functions in general. In large firms, assistant managers with responsibility for sales (or for particular geographical areas) could be regarded as belonging to Level 3. With regard to the organization of sales, no in-depth analysis has been made in view of the wide differences of approach between firms (depending on whether they have their own marketing network).

### 3.9. Planning and organization

The departments in question are those which plan production (i.e. give orders to the shopfloor on the basis of customer orders, delivery times and raw-material stocks), carry out work studies and exercise technical and



administrative control of the production process. The individuals responsible for such departments generally form part of firms' management teams and have a number of clerks under them. There are thus no intermediate levels. However, the administration of production planning and control is a considerable responsibility, and in a number of the firms visited the clerk carrying out this task had a key role, whether the work was still done manually or had been computerized. While he does not usually have any authority over subordinates in medium-sized firms his skills are at a higher level than those of a simple clerk. This job could thus be assigned to Level 3 on the basis of its programming functions. The individuals concerned have generally completed academic secondary education.

### 3.10. Product design and creation

In the clothing industry this process extends from design to pattern-making and the development of collections, and in the textile industry from design to the compilation of sample books.

Design departments are generally closely tied in with firms' management and often integrated into the marketing structure. The department heads are generally members of management, while designers are regarded as specialist staff; however, many firms do not have their own designers, preferring to buy in the services of professional designers or to produce goods under licence from other firms (generally foreign) with their own brand

names. In the latter case the design department has lower status, since its function is limited to adapting or copying existing designs, but even so the department head is always of senior rank. Such departments thus do not normally include Level 3 positions.

In many small and medium clothing firms design and pattern-making generally form a single department with one organizational structure; in some, however, pattern-making forms a section of its own, albeit within the design department. Where there is a post of responsibility for pattern-making it could be assigned to Level 3, provided it is not held by someone regarded as a member of the technical staff. This is frequently the case, and the post-holder has no specific training (or at most has received some form of training outside the education system) but has had considerable experience in the sector, perhaps having started work in craft tailoring.

In the textile sector design is under the direction of a technical specialist or of professional designers taken on by firms to prepare the collections, though it is very common for firms to work purely to order and to have no design department of their own. There are thus also no Level 3 posts in the textile sector, with the possible exception (given his practical training profile) of the technical specialist in charge of design.

However, in both clothing and textiles the work of

preparing and producing samples and collections has to be coordinated and monitored. The post with responsibility for this varies depending on the organization of the firm. Some firms have a small department for the production of samples using equipment which, though old, is very suited to this work, while others carry it out on the shopfloor in the course of normal production. In both cases the post in question may be assigned to Level 3, whether the holder runs the department producing samples (a supervisor in the textile sector, or a head of section in clothing) or coordinates the production of samples in the course of normal production.

Such posts are generally held by older workers of considerable experience and skill, who are assigned to a department which, though relatively quiet, involves a high level of responsibility.

Thus far we have outlined the features of the main jobs, in both textiles and clothing, which can be assigned to Level 3, drawing attention in some cases to differences between large and small firms. We now look in more detail at the position of both large and small firms, since there are substantial variations from the reference model compiled from medium-sized enterprises.

In small firms, and particularly in very small firms (fewer than 20 workers in the textile sector and 10 in the clothing sector), there are virtually no Level 3 jobs. The only post clearly at this level is that of the

overseer, a combination of supervisor and foreman, whose job is the coordination and practical execution of production. This is a more polyvalent occupational profile than in the medium-sized undertaking, since the overseer has to do everything, from operative tasks to taking management decisions. Overseers are generally among the oldest employees, with extensive experience and great mastery of their trade.

Outside the directly productive functions there are not normally any other jobs that can be included in Level 3. Small firms' organizational structure is very simple: one or more owners direct the undertaking personally, while an overseer coordinates production. It could be argued that such owner-managers should be assigned to Level 3, since the volume of their tasks is similar to that undertaken by Level 3 staff in a medium-sized firm; however, their level of education and training is usually higher and they have managerial responsibilities which go beyond the definition of Level 3. For this reason we consider it more appropriate to classify them as Level 4, adapted to the situation of small firms.

In contrast, large firms (those with more than 500 employees) include a whole range of posts with responsibilities for coordination, planning and management which are not normally found in medium-sized undertakings. Reference has already been made to the assistants to departmental heads whom, since they do not have a management function and their autonomy and responsibility

are limited, we felt it appropriate to assign to Level 3. However, there are other types of intermediate function, such as that of the management teams of a firm's different establishments or production departments (depending on whether the firm is organized on a centralized or decentralized basis), which despite their designation entail only limited responsibility and power of decision since there are several hierarchical levels above them. In such cases we are not inclined to assign them to Level 3, since they are regarded by their firm as middle management, and though their power of decision is often no greater than that of some Level 3 post-holders in medium-sized enterprises (supervisors) they are associated with a higher level of responsibility.

#### 4. Training needs

The previous chapter dealt at length with the occupational profiles and personal characteristics of Level 3 post holders in the Spanish textile and clothing industry. By analysing this information we can draw both general conclusions regarding the training situation at Level 3 in the industry and more specific conclusions relating to each of the profiles identified.

##### 4.1. Basic training deficiencies

The information set out in the previous chapter allows us to establish the characteristics of what we have called the Spanish model of skills and qualifications at intermediate levels in textile and clothing firms.

The first conclusion is that the great majority of Level 3 jobs, which by definition imply completion of vocational training and a certain degree of responsibility for programming or coordination, are held by individuals who have had no specific vocational training (or one unrelated to the industry) and whose general level of education is low (elementary schooling only).

This conclusion clearly needs to be modified to take account of individuals' ages. Older workers have a lower level of general education (incomplete elementary schooling or none at all) and have received no vocational training, while their younger colleagues have had more general education (full elementary schooling, sometimes to the Basic General Education level at the age of 14) and

are more likely to have received some vocational training, albeit not related to textiles. In any event this better educational situation of younger workers is not general, with the result that there is no universal acceptance that vocational qualifications should be required for jobs at this level.

The second conclusion is that Level 3 functions are wide ranging and crucial to production, given the structure of skills and qualifications in the firms in this sector. This is because the holders of such positions have under their responsibility teams of semiskilled workers who themselves lack the full vocational training associated with Level 2. This means in turn that the style of work carried out at Level 3 is one of direct intervention and close supervision of all the activities taking place under the Level 3 employee's responsibility, thus greatly reducing his capacity to do his own job. The organization of production tends to become congested "upwards".

The first conclusion must be seen against the background of the "skill improvisation" with which, as has already been mentioned, attempts were made to meet the Spanish economy's growth needs in the 1970s.

This does not mean that the sector's manual labour force, still less its Level 3 workers, are incompetent or ill prepared. On the contrary, the industry's concentration in areas with a long tradition of textile employment has

produced a workforce which is generally skilled and well able to do its work, as the entrepreneurs in this field recognize.

However, in a period of rapid technological and organizational change this lack of formal training and qualifications brings with it severe limitations, entailing an approach to the organization of work which seeks to remedy these shortcomings by an informal mobilization of skills and great pressure on the efforts which need to be made. All this means that the organization and productive capacity of the Spanish textile and clothing industry are highly vulnerable.

The limitations implied by this skills model are easily deduced. Workers who have learned their craft by a practical route are inclined to go on doing what they have always done, in the only way they know; their low level of education and lack of technical and scientific understanding of their craft means that adapting to new processes is difficult and time-consuming. This produces resistance to innovation, difficulty in introducing initiatives and tension at times of change.

These difficulties are dealt with by the use of the organization's, or the workers' own, informal resources. A number of examples stand out in the firms studied, with training courses being organized on the basis of the personal knowledge (of computers, pattern-making, methods etc.) of individual employees. These include Level 3



staff carrying out functions based on knowledge and skills acquired through hobbies: for instance, one firm's electronics expert is a worker with neither general education nor vocational training who took up the subject out of personal interest and acquired his special knowledge through correspondence courses and reading. Many more examples could be cited of the mobilization of informal resources, such as working additional hours to remedy problems that have arisen, working skills and abilities that are not officially recognized but are required at critical moments, and so on.

This requires an ability to mobilize such resources, either through a high level of individual involvement in the firm (it should be borne in mind that many textile and clothing firms are small and medium family businesses) or through financial or other incentives (free meals, days off etc.). Also needed is a major self-training effort on the part of the workers themselves, normally outside working hours.

There thus takes shape an organization in which informal elements become the normal mechanism for solving the training problems which firms face in a situation of change. This system has in fact succeeded in producing good results, as witness the firms with this structure of labour skills which have achieved technological modernization, a competitive position on foreign markets and products of high quality.

Nevertheless we feel that such a situation must be described as "fragile". We should not make a virtue of necessity, but rather ask ourselves whether an approach which grew out of the special circumstances of a period of rapid economic growth and a particular political situation is the most appropriate one to deal with current needs. Specifically we must ask whether it is possible using this approach to generalize the successes achieved to the majority of firms, what its economic and labour costs are, and above all what capacity it offers for innovation and a rapid response to current and future changes.

The combination of experience, informal organization and low levels of training provides a very diverse foundation for the analysis of the specific training deficiencies manifested at Level 3 in textile and clothing firms.

If we assume that a Level 3 occupational profile in the textile industry includes these training elements:

- learning skills and abilities of both theoretical and practical kinds,
- basic technical and textile training,
- practical training and abilities,
- specialized training in technical and textile innovations,
- leadership and management capability,

then the current situation of jobs of this type can be characterized as follows.

1. Their low levels of initial education mean that workers

find it difficult to acquire theoretical knowledge. This shortcoming is greatest among older workers and in particular among women, of whom there are many in the sector (56% in 1987). The educational level of younger workers is higher, notably among young women in the clothing sector.

2. Workers are skilled in learning by doing, since for the majority of the working population this has been their only form of training.

3. The basic training of the great majority of Level 3 workers is deficient, both in the general technical field and specifically in relation to textiles. They lack basic knowledge of textile technology and of the scientific basis of the various technical specialisms (mechanical, electrical, electronic, pneumatic, information technology etc.); they also lack basic knowledge of mathematics, design and foreign languages.

4. Workers generally have a good level of practical technical training, in the sense that they are able to operate all the installations, processes and equipment as required by their job. Their skill level depends on the particular situation in each firm and the needs it has had to meet. All firms which have introduced new processes or equipment have succeeded - sooner or later, and with varying degrees of difficulty - in adapting their Level 3 personnel to the new requirements and in achieving satisfactory production.

5. The extent to which workers have received specialized training in technical and textile innovations varies considerably, depending on firms' manpower training policies. In general, the information we have gathered indicates that few firms give their Level 3 workers any training which goes beyond the level of simple practical adaptation in such areas as new quality processes, programming machinery, automatic control systems and information technology.

6. The extent of training in aspects of leadership and management also varies considerably depending on firms' personnel policies. In response to the major shortcomings encountered and the problems that exist some firms have organized training courses in this field for personnel at Levels 3 and 4.

Points 1-4 apply to almost all firms in the sector; in the case of points 5 and 6 there is considerable variation from one firm to another.

In what follows we deal in greater detail with the training needs for each of the occupational profiles defined for Level 3, taking account of likely developments in skill requirements in the near future (i.e. up to ten years ahead).

#### 4.2. Training needs and Level 3 profiles

1. Supervisors are normally older workers with long experience in the industry who in the course of their

working lives have developed great expertise, making up in large part for their lack of formal vocational training, as well as demonstrating their willingness to keep abreast of developments in the industry. On their own account or through their firm they have followed many courses, regularly attend international trade fairs and keep up to date by reading specialist journals. Any individuals failing to do so have been displaced.

As a result this is the level at which the fewest skill shortcomings of the type defined in the previous chapter are found. The main deficiencies are in two areas.

First, the lack of a solid base of scientific and technical knowledge is an obstacle to mastery of new processes and techniques. The constant appearance of new technologies and rapid innovation in machinery, together with higher quality requirements and design-induced product changes, imply continuous changes in the classical parameters of the production process, giving rise to a constant stream of new problems whose solution frequently requires solid scientific and technical knowledge.

Second, mastery of the technical parameters of production in an earlier period was the basis of the supervisor's effectiveness at work, enabling him to optimize processes and even introduce his own innovations. The supervisor's special secrets, his tricks of the trade, the improvements made on the basis of long and fruitful experience: these have been among the major contributions made by this group

of employees to the Spanish textile industry.

The difficulty of acquiring this kind of mastery through experience in a period of innovation, without a solid foundation of technical knowledge, means that the necessary know-how is being lost in Spanish textile firms. Firms find themselves having to rely on the suppliers of technology or research centres to remedy day-to-day or to introduce innovations. This factor is not always brought out in discussions of the sector and could be a major determinant of its future competitiveness.

The second area of shortcomings is information technology. The introduction of automated machinery and the application of information technology to control systems imply a development in the supervisor's occupational profile towards the possession of and the ability to manipulate large quantities of information through using computers. This will require a knowledge of computers, programming and the ability to use computer programmes.

Linked to these two areas of shortcomings is the need for some familiarity with a foreign language, notably English, in order both to keep abreast of developments and to understand the technical instructions supplied with machinery.

Firms are not unanimous on the kind of training that supervisors will need over the next few years: 55% specify second-level vocational training, 7% first-level vocational training and 17% a university qualification at

first-degree level, while 21% do not think any formal training is needed. These figures indicate a widespread view that second-level vocational training is appropriate, while not forgetting that some firms opt for a university qualification.

This fits in with the evolving role of the supervisor, outlined in the preceding chapter, in the area between technical manager and shift overseer. Nevertheless, around one fifth of firms opt for a training profile based on practical experience rather than academic technical knowledge. Firms' position on skill models will be discussed in the next section; at this point we would note that this figure of one fifth is significant because it emphasizes the main current quality of the supervisor, namely his practical experience.

All the comments from firms stressed the need to ensure that supervisors had thorough practical knowledge even where they had attended university. This means that the choice lies between a first-degree university qualification with proper practical preparation on the one hand and on the other second-level vocational training, with a preference for the latter on the part of the firms opting for formal vocational qualifications. The profile would thus be that of technical specialist, with a vocational or university qualification, who has organizational and command skills.

2. Foremen as an occupational group have the key role in

the development of skill patterns in the Spanish textile industry and it is in this group that the need to concentrate training efforts is most urgent.

In a professionalized skills structure the foreman has the central role. Once the parameters of production have been set, the foreman has autonomous responsibility for organizing its execution and for initiating the solution of any problems; for this purpose he has trained operatives at his disposal. At the present time the foreman's role oscillates between that of assistant to the shift overseer or supervisor and that of a craftsman with a certain measure of authority.

Although the functions of the foreman are currently fairly well defined, there are two factors which may induce variations in their development. On the one hand the developing role of the supervisor has an impact on that of the foreman in those medium-sized firms in which the foreman is in charge of the shift in his section: the more closely the supervisor's role approaches that of a technical manager, the greater is the foreman's responsibility and autonomy. In contrast, where the supervisor functions as a shift supervisor, the foreman's role is more dependent and he lacks the autonomy needed to define his position.

The second factor is the development taking place in the area of maintenance. As outside contractors are increasingly used for maintenance work (with the internal



maintenance department losing significance accordingly), the foreman takes increasing technical responsibility for the machinery and hence for its maintenance and repair.

The balance between these two factors may encourage the development of the occupational profile of the foreman in the direction of increased or reduced involvement in such areas as quality, machine setting, repair work etc. depending on the organization of the firm, the type of product and the length of production runs, and the department (in spinning the foreman's role is usually somewhat more technical, in weaving somewhat more organizational).

Bearing in mind both the current characteristics of the foreman's role and the possible range of developments, the following training deficiencies may be identified.

First, this occupational group lacks basic textile training, reflecting its members' lack of vocational training in general. This raises two points: on the one hand it is no longer conceivable that skilled Level 3 workers could be obtained without a thorough vocational training, and a radical change is therefore needed in the skills model of the textile and clothing sector; on the other, just any vocational training will not suffice - it must be training specific to the occupation in question. The training profile of a foreman must include textile training: it is not enough that he should have a vocational qualification in some other field, even a

related one, without having also undergone an appropriate form of retraining. In the few cases in which foremen have received any vocational training, it is generally in the field of mechanical engineering rather than textiles. We believe that even though an individual may have had some form of engineering training specialization in the textile field is also needed.

These shortcomings explain the large gaps found in many foremen's knowledge of textile processes - gaps which in routine work can be filled by experience but which become clearly visible when problems have to be solved or high standards of quality obtained.

The problem is aggravated where the individual foreman has reached a certain age and thus has difficulty in learning (or relearning) basic ideas, especially if his educational level is low. However, it is also the case that with appropriate methods the experience of these workers forms a sound foundation on which more formal general and theoretical knowledge can be built.

The second major lack is in the area of knowledge of the various technologies built into machinery. The majority of foremen have a purely mechanical background, so that the skills of this occupational group are largely concentrated in just one field; very few have qualifications in the areas of electrical engineering, electronic, hydraulics, pneumatics etc. The knowledge which foremen have of these other field derives from

experience or from the personal efforts or interests of the individuals concerned.

If the tendency to include maintenance among the foreman's functions persists, this will require improved knowledge of all aspects of machinery, not just on the mechanical engineering side, and an ability to diagnose faults of various kinds.

Clearly, foremen do not need to be specialists in all these fields, but they must have an adequate familiarity with the correct operation of the equipment. Many current maintenance problems could be solved (and much "down time" saved) if foremen were better trained in these various areas.

Third, foremen need to be trained as intelligent users of information and information technology. The introduction of computerized monitoring and control systems within the production process and the need to programme machinery mean that personnel at this level have to master the programmes used. At present training in this field is normally limited to a few instructions in how to operate the programme: this is clearly inadequate, and a more thorough familiarity with programme operation and some basic knowledge of computers is needed if the foreman is to use the programme independently without having to refer to someone else should anything out of the ordinary happen.

In relation to the last two points it is also desirable that foremen have some knowledge of English.

Fourth, there is a need for greater familiarity with recent innovations, both of a technological nature and in the textile process (especially those related to quality). A certain level of knowledge already exists in this area, as individuals have kept up to date with developments, but a more thorough familiarity is needed.

Fifth, there is a lack of training in command skills. While many of the problems arising in this field are problems of organization, for example, rather than of deficient command skills, foremen are rarely given training in how to exercise authority at the time of their promotion.

As for the level of initial training which firms consider necessary, there is greater divergence in the case of foremen than in that of supervisors. Employers divide into three roughly equal groups on this point, 36% believing that no specific training is needed, 33% favouring first-level vocational training and 29% second-level training; just 2% favour training at university level. While a substantial majority of firms thus consider that some form of vocational training is needed, the size of the remaining minority underlines the eminently practical image which employers have of this occupational group.

In general employers believe that, in the near future at least, the best training for their foremen is in the mechanical field; while they think it desirable that foremen should have some knowledge of electronics and electrical engineering, the foundations should remain mechanical. Summing up, the training profile of the foreman could be one of a skilled worker with a background of textile training (with a mechanical bias), some specialization in electronics and an ability to direct other workers.

3. Under the generic title of overseers in the textile industry we include a varied set of Level 3 jobs which do not fully satisfy the definition of supervisor or foreman posts (though they are more or less assimilated into these two groups) and which are characterized by a limited responsibility for a section or department. This heading covers e.g. shift overseers and the heads of maintenance, larger stores or dyeing sections. Overseers in the clothing industry are the subject of the next section.

In general the conclusions drawn in respect of supervisors and foremen also apply to overseers. In addition to the common need for training in the exercise of authority, various specific needs apply to the different groups within this category.

In the case of heads of maintenance the very obvious shortcoming is their lack of a thorough specialist training, and consequently of fundamental technical and scientific knowledge of the various technologies used in a

textile factory. If the trend towards using outside contractors for maintenance and repair work continues, their job will be limited to the maintenance and servicing of plant, and different kinds of technology will need to be taken into account. In any event we consider it essential that a head of maintenance should have received a full specialist training, and not simply have learned his trade by experience.

All the firms visited wish to retain the mechanical engineering basis of the training profile of staff responsible for maintenance: electronic innovations notwithstanding the equipment currently in use remains predominantly mechanical, and in any event the maintenance of electronic components does not present many difficulties. To the basic knowledge of mechanical engineering firms would add some familiarity with electronics and electrical engineering, and also with hydraulics and pneumatics. All such knowledge needs to be related specifically to textile industry requirements. There is also a need for training in the areas of energy and the environment, given their growing importance within the industry.

For staff in charge of stores with large movements of goods the most urgent training need is in the intelligent use of information technology. As in the case of foremen, such staff need to be thoroughly familiar with the relevant computer programs: it is not enough simply to be able to use a few commands, since this greatly

limits the user's autonomy.

Dyers are perhaps the occupational group with fewest training problems, given their highly specialized function, but even here two kinds of training need can be foreseen: one which follows from the progressive automation and computerization of the processes involved (requiring a more thorough knowledge than that of the simple user if optimum use is to be made of programs), and one which relates to their general vocational training. As has already been mentioned, this job is done both by individuals with first-degree university qualifications and by persons who have no formal qualification but have learned their craft by the practical route. For the latter group there is a need to move to full vocational training, either in chemistry with specialization in the textile field or directly in textile studies. The training profile would thus involve either a university qualification (in textile studies, or in chemistry with specialization in textiles) or full vocational training in the same field, depending on the personnel policies and the organization or size of the firm in question.

Employers' views as to the type of training which overseers as a general group should have received divide into two opposing camps: 43% consider that no specific training is necessary, while 36% and 18% favour second- and first-level vocational training respectively and 3% believe that a university qualification is needed. These figures indicate the coexistence in the industry of two

widely differing skill models.

4. Under the heading of overseers in the clothing industry we include all those head of section or department posts analysed in the profiles for clothing occupations (heads of cutting out, finishing, laundry, etc.).

In the clothing industry there are general training needs of two types, relating to specialist training in clothing skills and preparation for positions of authority.

Mention has already been made of the almost total absence of specific vocational training at almost all levels and in almost all sectors of the clothing industry, indicating a need for such training in respect of all Level 3 jobs in the industry. It may be that these jobs are currently held by persons whose only qualification is a measure of aptitude for command and organization and some practical experience in the field, but this is the result of the particular circumstances of economic growth in Spain rather than a desirable state of affairs to be sought in the future.

In the case of pattern-making and cutting-out, in addition to traditional craft training there is a need for some specialization in the new technologies now being adopted.

The other need relates to the organizational and command functions which, as we have seen, have particular



relevance in the clothing industry. In this connection consideration must be given to the position of women who, despite making up the greater part of the industry's workforce, do not obtain Level 3 posts. It cannot be argued that this reflects a greater training deficiency on women's part, since training is virtually non-existent anyway.

In fact, while women have fewer career opportunities, it is easier to find women in the industry with relatively high levels of education and training (41% of the women have completed secondary education, as against 30% of the men). The lack of women in Level 3 posts is due to social and cultural factors (discrimination against women in positions of authority) rather than to other factors of a technical or organizational nature. Training aimed at developing women's command skills could help to overcome such barriers, whose existence can no longer be justified.

The same considerations apply to those in charge of maintenance in the clothing sector as to their opposite numbers in textiles.

Finally, there is a need for training in the use of computers for all Level 3 workers in the clothing industry, where, albeit more slowly than in textiles, programmable machinery is gradually being introduced, along with computers for the control of production in the various sections of the workshop. This process has advanced furthest in the area of stock control.

5. Under the heading of office staff we include all Level 3 posts not directly concerned with production; their function is normally organizational and administrative, and they are located either in the administrative departments themselves or in marketing and organization departments.

Mention has already been made of the great diversity of occupational profiles under this heading and the difficulty of defining them clearly, since whether or not a job can be assigned to Level 3 depends in large measure on firms' organizational structure. It is thus difficult to draw general conclusions regarding training deficiencies in this area.

Cautiously, however, we can identify three types of need which make themselves felt with differing degrees of intensity in many of these jobs.

First and most obvious are the needs relating to information technology. Office automation is already well advanced in the industry, and the ability to use computer programs therefore forms part of the profile of administrative occupations. Thus far staff retraining has not presented too many problems, though it has to be said that this has generally amounted to no more than a brief course of instruction in program commands. We believe that it is necessary to stress the need for a more thorough knowledge of the operation of programs. What is involved is not high-level programming, but rather an

ability to make the fullest use of existing programs and to deal with any incidents that arise.

We see a major need for improved training in the use of computers. Software suppliers do not meet all needs, and firms need to resolve as a matter of urgency the problems posed by the process of computerization. Better training for Level 3 workers would be of great value in this connection.

Second, while many administrative and organizational jobs are closely connected with the production process (planning, coordinating collections of samples, etc.) or with the products themselves (marketing), their holders sometimes lack even an elementary knowledge of the processes and technology of the textile and clothing industries. A very basic familiarity with the technical side would be a useful complement to the other skills of Level 3 employees in the administrative, organizational and commercial field.

A number of firms voiced this need in relation to their marketing teams, and in fact the occupational profiles of some of those in charge of planning or the coordination of sample collections include practically acquired knowledge of this type.

Third, while it is firms' administrative sections that have the greatest number of staff with vocational qualifications, they have yet to become a general

requirement. Opinions on the matter vary: 48% of employers consider that Level 3 office staff should hold second-level vocational qualifications (and 6% first-level), while 23% believe that no specific training is needed and a further 23% favour training at university level. While these opinions reflect the diversity of the jobs in question, the dominant view seems to be that a full course of vocational training is needed.

Finally, in firms which export their products there is a need for some skill in foreign languages.

#### 4.3. Employers' positions on training

The training needs outlined in the last chapter were identified by comparing the analysis of Level 3 occupational profiles with the personal characteristics of the job holders. We must now ask ourselves whether employers agree with this assessment, to what extent they are aware of shortcomings, what position they adopt and what policies they are developing to deal with deficiencies.

These questions were covered in the survey of employers in the textile and clothing sector; the responses received indicate fairly clearly the range of positions adopted.

The general conclusion to be drawn from the responses is that Spanish textile and clothing firms are ambiguous in their attitude towards the value of training as an instrument for improving the skills of their workforce.

This ambiguity has two aspects. First, there is a measure of inconsistency between a general recognition of the value of training and employers' practices in respect of labour skills. That is, there is a close relationship between the skill structure of a firm's workforce and its real training needs. Where a firm has a policy of using mainly semiskilled workers, with only a very small number of properly skilled or qualified individuals, its training needs - whatever its views on the value of training - will be very different from those of a firm following a policy which stresses skilled workers and sound basic

training.

As has already been noted, the majority of Spanish firms follow the former rather than the latter policy, this being fundamentally the result of the characteristics of economic growth in Spain and the circumstances in which it took place. It is thus hardly surprising that there should be some discrepancy between general judgements, reflecting certain wishes and expectations, and concrete actions dependent on immediate needs and realities and conditioned by past inertia. This may be deduced from the results of the survey.

Of the firms which responded, 60% stated that their intermediate staff were not adequately trained for the jobs they were performing. In small and medium-sized firms and the spinning, knitting, dyeing and clothing subsectors the proportion was somewhat greater. This figure clearly reflects the situation, outlined in previous chapters, of an almost complete absence of training among Level 3 supervisory staff and indicates that firms are very much aware of this situation.

That firms consider two thirds of their intermediate personnel, on whom the whole process of modernization relies, to be inadequately trained gives a clear indication of the scale and seriousness of the problem - a problem which we believe is rooted in the approach to labour management which took shape in the period immediately past.

The situation is aggravated by the fact that 40% of firms state that they have no workers capable of replacing their intermediate staff: not only are the majority of the intermediate staff themselves untrained, in many cases the underlying situation is even worse.

This indicates the crisis facing the current skills model, which is incapable of ensuring that key posts are filled. For many years firms have had no training policy aimed at preparing workers to fill these posts. The labour market has supplied, through a powerful selection process, a workforce which, though lacking training, has acquired through experience the skills needed for a particular set of conditions of production, while creating behind them a wide generation gap whose full scale is now apparent - and precisely at a time of innovation when new blood is needed.

The problem is thus clearly identified, coinciding fully with the analysis made of the personal characteristics and occupational profiles of Level 3, and one might therefore feel justified in expecting firms to change their skills model and training requirements for intermediate staff. This is not yet the case, however, as witness the fact that the Level 3 training profile remains based on experience without any solid foundation in formal training. Around 90% of firms believe that good intermediate personnel can be produced on a basis of elementary education coupled with experience in industry and a few short *ad hoc* courses: a profile based on

experience coupled with instruction on specific topics and a low level of general education, and above all lacking full vocational training.

The fact that virtually all firms in the industry take this view seems to us highly indicative of the preponderance of the current skills model, despite the major shortcomings detected and despite some firms' introducing, as we shall see, a different model.

This gives rise to the ambiguity mentioned earlier and to the conclusion that a transition is currently underway between a skills model in crisis and a new model now taking shape but not yet widely adopted.

The second aspect of the ambiguity is as follows: mention has already been made of differences between firms regarding the formal qualifications to be demanded in the selection of intermediate staff. That 21% of employers feel it is unnecessary to require any form of qualification in the case of a supervisor, 43% in that of an overseer, 36% in that of a foreman and 23% in that of intermediate-level office staff, is indicative of the fact that a large proportion of firms accept the current skills model and see no need for change.

At the same time 55% of employers believe that supervisors need to have followed a full course of second-level vocational training, the comparable figures for overseers, foremen and intermediate office staff being 36%, 29% and



48% respectively. This indicates that another large group of firms already favour a policy of specialist training for their workforce departing from the practices customary in the past.

This new model directly contradicts the profile of an intermediate employee comprising elementary education coupled with short ad hoc courses. The fact that some employers who declared themselves in favour of the new model also responded affirmatively to the training-less profile is symptomatic of the contradictions existing at a time of change from one model to another. A policy favouring untrained labour is associated with the profile based on elementary education only, while one favouring highly skilled workers is associated with the profile based on formal vocational training.

Whether the bulk of the industry evolves in one direction or the other, whether or not the new model becomes general, is tied up with the industry's response to the challenges facing it and to the changes taking place. The element of training and skill is closely linked to the other elements making up the management of a firm.

The availability on the labour market of skilled workers whose training meets the requirements of the new model will no doubt favour its development, but at the same time the absence of vocational courses feeding the labour market with suitably trained workers is a restraining factor.

Some 90% of firms state that no suitable courses are available for training intermediate staff in the Spanish textile industry. This is the third element in the clear outline which firms give of the current position in the industry: a lack of trained workers, a need for trained workers, and a lack of suitable training. The next chapter's analysis of the training currently available confirms the picture which firms paint.

Two other survey questions probed more deeply into firms' thinking on the conditions in which their intermediate personnel should be trained. First, asked whether training should be given on employers' premises or at specialist centres, 45% favoured the use of specialist centres, while 39% preferred a form of collaboration between firms and training centres with the latter providing theoretical training and the former practical training. This shows a clear desire on firms' part to collaborate in the training of their intermediate staff.

Second, asked when the training of intermediate staff should take place, in or outside working hours, 66% of employers favoured training outside the working day, 11% part in and part outside working hours, and 23% entirely within the working day. These figures are in keeping with the voluntarist view of training which still dominates the industry's skills model, the result of the lack of any tradition of company training policies. In this context training is seen as the employee's affair, for which he should take responsibility (including

financial responsibility), rather than an element of company policy.

The figures also reflect the heavy workload borne by intermediate personnel and their "indispensability" due to the organizational problems already mentioned: in this situation there are great difficulties in allowing such staff to absent themselves from the firm for the purpose of attending training courses.

Despite this, the 34% (23% + 11%) of firms which include training among their activities demonstrate that some employers at least appreciate that there are alternatives to the traditional view.

#### 4.4. Quantifying training needs

Having both identified the nature of training needs and ascertained firms' views we now attempt to determine the magnitude of the problem. Our purpose here is not to determine the exact number of Level 3 workers in the Spanish textile and clothing industry whose training is in some way deficient: this would be a very difficult task when related to the whole of a sector, extending beyond the scope of the present study. Rather do we seek to estimate the extent of the training needs detected and defined in the preceding section, providing a rough idea of the dimensions of the problem with a view to assessing the resources needing to be mobilized in training policies aimed at this sector.

To this end we begin by quantifying the need for training, comparing it with what is currently available and thereby identifying shortfalls. This involved developing a Level 3 personnel model for the various size categories of firms, based on the information supplied in response to the questionnaire sent to all employers in the industry. For each category we calculated a minimum and maximum number of Level 3 employees, thus covering the various organizational systems and types of firm found in each subsector.

This produces a range of figures, representing a very rough estimate of the size of the population studied. In no sense should this be regarded as an exact calculation. However, having discussed it with a number of employers and experts within the industry we feel it is nevertheless a useful guide.

Table 2.

Firm size	Number of firms	Model estimate	Minimum	Maximum
<5	1087	1	1087	1087
5-25	1097	1-3	1097	3291
26-50	486	4-8	1944	3888
51-100	280	6-10	1680	2800
101-250	242	10-20	2420	4840
250-500	60	15-40	900	2400
>500	18	40-100	720	1800
Total	3270		9848	20106

Taking the mean between the minimum and maximum figures gives us the figure of 15 000 for the number of Level 3 employees in the Spanish textile industry. It is not possible to make a similar calculation for the clothing industry because the necessary statistical information is not available. However, given that total employment in the clothing sector is around three quarters of that in the textile sector, a crude assumption for comparison's sake would be that clothing firms have around 10 000 Level 3 employees in all. Starting from these figures, and bearing in mind all the while that they are at best rough approximations, a number of deductions may be made.

1. If the working life of intermediate personnel is 30-40 years, then 400-500 new entrants to Level 3 will be needed every year in the textile industry, and 300-400 in the clothing industry, to replace workers who retire. This gives an indication of the need for initial training to be provided by the education system.

2. As to the continuing training needs of the current workforce (whether in work or unemployed), a distinction may be made between the general training needs mentioned in the previous chapter and those which are specific to smaller groups. While the latter cannot be quantified with the means available, the former may be related to the figure of 60% for training deficiencies recognized by employers (and coinciding with the percentage of intermediate personnel which the survey found to have received no vocational training). This gives us a figure

of 9000 for the textile industry and 6000 for the clothing industry. There is thus a major shortfall in the availability of continuing training to meet general basic requirements in the sector.

#### 4.5. Training availability

The definition of Level 3 refers not only to the completion of compulsory but also to vocational education with supplementary technical training or other similar training at upper secondary level. In the current Spanish education system this corresponds approximately to second-level vocational training.

Access to second-level training is open to those who have completed a first-level vocational course or the more academic secondary baccalaureate, both of which follow on from the compulsory elementary education provided for the 6-14 age range.

Second-level vocational training exists in two modes, the "general regime" comprising an introductory year and two further years, which is aimed at those completing first-level courses, and the "regime of specialized studies" extending over three years. The first mode is very little used and has effectively been abandoned. Students completing a second-level course receive an intermediate technical qualification (as *técnico especialista*) in the relevant subject area and occupational field. There are 21 recognized areas of study, among them textiles and fashion and clothing.

Textile studies are very much a minority interest, as witness the numbers of students enrolled and, more particularly, obtaining qualifications. The small numbers both of students taking the courses and of institutions providing them, even in the country's traditional textile areas, are explained by the recession in the industry, the high cost of machinery, the deficient equipment of the colleges offering courses, outdated syllabuses and the lack of acceptance of vocational training on the part of Spanish employers. Effectively the education system may be said to provide virtually no vocational training in the textile sector.

This is not the position in the area of fashion and clothing: here the number of students is greater (particular at the first level of training), equipment costs are lower and more institutions offer courses. However, course content is at a very low level of specialization and expertise.

Table 3. Students following courses of vocational education in textile and clothing studies

	1984-5*	1985-6
Enrolments		
First level, textiles	187	268
Second level, textiles	100	385
First level, fashion and clothing	3028	3260
Second level, fashion and clothing	561	728
Graduations		
First level, textiles	35	-
Second level, textiles	18	-
First level, fashion and clothing	602	-
Second level, fashion and clothing	121	-

\* The 1984-5 statistics do not include figures from the Pais Vasco.

Source: Ministry of Education and Science.

With some exceptions the training provided is somewhat poor, owing to outdated syllabuses and a mismatch with the industry's real needs. A further obstacle in the way of acceptance of the fashion and clothing qualification by employers is that while virtually all of those obtaining it are women there are no female holders of Level 3 posts in the industry.

In this situation, with provision for textile studies virtually non-existent and fashion and clothing courses requiring radical reform, it could hardly be said that the



industry's training needs were being met, qualitatively or quantitatively, by existing courses, in either the textile or the clothing sector - as employers' responses to our survey correctly observe.

As for the job-related training provided outside the education system and funded by the National Institute of Employment (INEM), this has generally been directed towards unemployed youngsters at Levels 1 and 2 in the Cedefop definitions. There have been few examples of courses aimed at Level 3 personnel, whether provided within firms or in the INEM collaborating centres.

These training shortcomings, encountered both within and outside the education system, have given rise in the recent past to a variety of initiatives aimed at updating and improving existing courses and at filling gaps in provision.

A number of educational institutions are experimenting with innovations in two respects, namely updating syllabuses to introduce subjects related to design and the new technologies and establishing closer links with industry through student placements and collaboration between firms and colleges.

Other experiments, mainly in private colleges and in the area of fashion and clothing, have combined elements of training within and outside the education system, giving greater flexibility and better links with industry.

A number of initiatives have been taken to fill gaps in the range of training provided within the education system, most notably the creation in 1986 of the Sabadell School of Textile Arts and Crafts by the Sabadell Guild of Manufacturers, an association of employers to which the great majority of firms in the wool subsector belong. This initiative is important in a number of respects: it is the first attempt which firms have made in the recent past to equip themselves with a training infrastructure aimed at preparing individuals for intermediate jobs; it involves collaboration with the Terrassa School of Technical Engineering, which makes available its laboratories and workshops and provides training for teachers; funding is provided by public bodies (the National Institute of Employment and the government of the Autonomous Community of Catalonia); and use is made of the alternance approach, in that off-the-job training is provided between 6 and 9 pm and the majority of students work in local firms during the day.

Another set of initiatives are concerned with design, where there are major gaps to be filled. Aside from the Higher School of Design and Fashion in Madrid, the largest-scale initiative is the establishment of a Higher School of Design in Barcelona, based on an existing institution which has operated with notable success in the recent past. This initiative is supported by the Ministry of Industry, the government of the Autonomous Community of Catalonia and the industry itself. The aim is that it should offer university-level courses of a

flexible nature able to meet a variety of needs.

These two institutional initiatives are aimed at Cedefop Levels 4 and 5, a sector which is also covered by the five university schools of textile engineering at Terrassa, Béjar, Alcoy, Barcelona and Canet.

All these initiatives represent interesting lines of development to be taken into account in the urgently necessary restructuring of vocational training provision in the textile and clothing sector.

## 5. Conclusions and proposals for meeting the training needs of the textile and clothing industry

In the light of the last chapter's analysis of Level 3 training requirements in the textile and clothing industry, and given the seriousness of the shortcomings detected and the importance in current economic circumstances of modernizing the sector, we see a need for the formulation, jointly by government, employers and unions, of a training policy specifically for the sector. Existing resources are insufficient to remedy the shortcomings found: it will be necessary to develop new forms of vocational training within the education system, requiring the participation of employers and unions. With regard to training outside the education system, the Training and Employment Plan (Plan de Formación e Inserción Profesional, PlanFIP) is a useful instrument, provided that it meets the industry's needs and firms can be encouraged to take part. However, inertia, the lack of a training tradition, a lack of information and everyday problems all tend to retard continuing training for the workforce: desirable objectives are not achieved and, worse, most initiatives are introduced not where the need is most urgent but in the firms which are already most dynamic and up to date.

A training policy for the sector must encompass not only initial training for those entering the industry over the next few years but also continuing training for its existing workers, whether or not currently in employment.

Looking first at initial training, the direction indicated by the present study is that of the new skills model being introduced in firms with occupational profiles based on solid vocational training. In our view the priority objective should be to promote the development and generalization of this model. This implies that everyone whose occupational activities "can be carried out autonomously and/or entail other responsibilities such as those of programming and coordination" should have completed Level 3 training, as defined by the Council of the European Communities, in the manner that some Spanish textile and clothing firms have now introduced.

In the current education system this level corresponds to second-level vocational education, but account must also be taken of the forthcoming reform of secondary and vocational education by the Ministry of Education and Science and the various Autonomous Communities with educational powers. In the new structure the Cedefop-defined Level 3 corresponds to the second level of technical and vocational education, following on from compulsory schooling. Access to this stage of education will be open to those who have completed their baccalaureate (the second phase of secondary education) or the first level of technical and vocational education, both of which will follow on from the first (compulsory) phase of secondary education.

This structure has mixed benefits as regards meeting the requirements of occupational profiles in the textile

sector. The advantage is that for the first time there will be provision for thorough technical and vocational studies, based on a broad and balanced general education providing a firm cultural foundation for specialization by students in particular fields, whether through the two levels of technical and vocational studies or through the specialized baccalaureates coupled with the second level of technical and vocational studies.

The drawback lies in the structure of the second level of technical and vocational studies, the one that is relevant to Cedefop Level 3. It must be borne in mind, as has been noted in earlier chapters, that the textile industry requires highly practical forms of training and combines a whole range of disciplines (mechanical engineering, electrical engineering etc.) all with a specialization in textiles.

With this in mind, the structure of the two levels of technical and vocational education can fully meet the industry's Level 3 needs, either through the training of qualified textile and clothing specialists (over a period of three years) or through two-year courses in mechanical, electrical and electronic studies coupled with a third year of specialization in textile or clothing studies. In the latter case, one year of further study and specialization in the sector appears adequate to prepare students for an occupational profile for which the education system does not currently provide but which is urgently needed by the industry.

While the structure of the two levels of technical and vocational studies appears to us correct, the alternative - the specialized baccalaureate coupled with the second level of technical and vocational studies - presents certain difficulties. In principle this mode is a good one, providing as it does for a thorough training in the basic disciplines of a technical nature which are of great value for supervisors and overseers in the industry; the problem is encountered in the subsequent specialization at the second level of technical and vocational education which under the reform is planned to last one year. This would seem to be too short a time in which to prepare for work in the industry young people who, while having broad technical knowledge, know nothing about textiles. A second year would surely be needed, with a view both to greater specialization and to greater practical experience, vital in the textile and clothing industry.

If this problem can be remedied, we feel that the specialized baccalaureate coupled with the second level of technical and vocational education is the best way of securing training profiles mid-way between the higher (university) level and classical vocational training and geared to the more senior Level 3 jobs. It is here that one of the greatest gaps in the Spanish education system is to be found: these are key profiles from the industry's viewpoint, being both greatly desired and difficult to obtain.

We would stress the necessity of providing for full

practical training for Level 3 jobs. If we have thus far expressed our strong belief that full vocational training should be required for all skilled jobs in the industry, this need not be to the detriment of the practical training possessed by those currently holding such jobs. We consider it vital to continue developing these practical skills, since without them the kinds of training we propose would be unviable in the textile and clothing sector. For this reason we think that it would be very useful if the second level of technical and vocational studies were organized on an alternance basis and in close collaboration with employers in the sector.

This leads us to suggest that, following the example of the Sabadell School of Textile Arts and Crafts, second-level technical and vocational education should be offered in institutions closely linked to firms in the industry and with responsibility shared between government, employers and trade unions. This possibility is mentioned in the reform plans of the Ministry of Education and Science and could very usefully be developed.

The expensive equipment required as part of such training, the need for qualified teachers whose knowledge and skills are kept up to date and the need for practical training all point towards special institutions which have at their disposal, directly or through collaborating firms, suitable modern equipment, linked with enterprises where teachers can update their knowledge and skills and students can undertake practical training. It is also



desirable that there should be links with nearby university centres specializing in textile engineering, so that use can be made both of their equipment and of their capacity for the training of teachers.

Employer and union involvement would greatly assist the industrial recognition of the training offered at such institutions, and that in turn would favour the progressive consolidation of the new professional skills model at Level 3 in the textile and clothing industry. In parallel with this training plan it is essential that employers and unions agree to modernize the now obsolete occupational categories and nomenclature used in the industry, to facilitate the recognition of the new qualifications.

Only a small number of educational institutions are needed to provide training at this level: our information indicates that from five to seven colleges located in the areas where the textile and clothing industry is concentrated, properly equipped and working in coordination, would be sufficient.

For initial-training purposes it is clearly necessary to introduce courses covering the main processes in the production cycle, namely spinning, weaving, dyeing and finishing, knitting, cutting out and making up, textile design and clothing design and pattern-making.

If such courses were of modular construction, as the

reform plans suggest, some of the modules could be used to provide specialized training for individuals with training in some other field wishing to enter the textile and clothing industry (maintenance technicians and electricians, office staff, agents and sales staff, etc.).

As for continuing training and measures to update employees' knowledge and skills we believe that a thorough reappraisal is needed of current objectives and resources. First, priority needs to be given to retraining for the existing workforce; this is at least as important as initial training. Second, a distinction needs to be made between courses aimed at upgrading knowledge and skills, which may be of short duration and organized in close collaboration with centres of technological innovation (whether university institutions or firms producing new technologies) and basic continuing training, aimed at reorientating or updating knowledge and skills, which must be of longer duration and organized in collaboration with vocational training centres. Third, continuing training needs to be closely geared to each firm's specific needs.

This implies that continuing training cannot continue to be regarded as something of secondary importance, included in a policy of job-related training based on very short courses (whatever the purpose of the training) and in many cases not fully relevant to firms' needs.

A training programme drawn up specifically for the textile and clothing sector, covering the industry's needs up to

1992, would be a valuable instrument for reformulating objectives and adapting resources accordingly.

A programme of this type, covering Level 3 training outside the education system, would need the approval of employers and unions in the industry. The programme could also most appropriately be operated by the employers and unions, since this would help ensure that it met the industry's needs, motivate employers who have not yet adopted the new skills model and encourage participation by the workforce.

Account would need to be taken of the needs of firms located away from the areas where the clothing and textile sector or other industry is concentrated. For such firms, and for certain types of training, it would be useful to experiment with distance training of the type being designed for the cotton subsector, provided the training process is properly organized and monitored.

Provision must also be made for the needs of women, with special measures to promote their participation in these various forms of training. The need is not so much for special women-only courses as for measures to overcome obstacles to their participation, whether due to domestic responsibilities or to prejudice against the promotion of women to positions of authority.

The programme would need to identify priorities for action taking account of both available resources and urgent

needs. While recognizing that this is a task for the industry's employers and unions, in what follows we suggest a number of priorities relating to Level 3 jobs on the basis of our contacts with firms.

A distinction may be made between requirements general to much or all of the industry, for which wide-ranging provision is needed, and more specific requirements relating to the position of individual firms.

In our view priority needs to be given to continuing training for foremen and overseers in the following areas: first, the technology of the textile process and the new technologies (electrical, electronic, pneumatic etc.) that are embodied in machinery and, second, aspects of management and the exercise of authority. These two themes are of relevance to the great majority of the sector. Then come (depending on the situation of the individual firm) information technology and innovations in the textile process. For those in charge of maintenance priority must be given to training in the new technologies (especially electronics) that are incorporated in textile machinery.

Workers with responsibility for stores require training in information technology at user level, as do those in charge of dyeing and finishing.

Overseers in the clothing industry need a basic training including pattern-making, cutting and sewing. In the

clothing sector intermediate personnel are generally younger than in the textile sector; this may mean they are more receptive to continuing training, making it possible to overcome the problem of the lack of full vocational training in this sector. As well as filling this gap, provision is needed for training in management techniques and the exercise of authority for all intermediate personnel in the clothing industry. There is also a need for specific training in the use of information technology.

In the case of supervisors the priority is thorough familiarization with new techniques and a basic but complete training in information technology extending beyond the simple user level.

Outside the production sector, i.e. in the areas of administration, marketing etc., there is a need for training in the use of computers at the level described for supervisors and elementary training in textiles. In the case of textile specialists and those in charge of clothing collections there is a need to strengthen and update their knowledge and abilities in design.

As may be noted, the type of priorities identified relate to basic training needs, i.e. to the type of deficiencies found in analysis to be most common and to be the source of the skills problems of the industry's workforce.

From this viewpoint, we believe that a training programme

for the sector cannot be undertaken with a series of short informative or introductory courses in the various subject areas, since this would not solve the problem: the approach needed is one which tackles the basic deficiencies that have been identified. Improvised training is not enough; proper resourcing will be required to provide the necessary quality safeguards.

A whole series of modules could be designed, with a minimum duration of 200 hours, geared to adult education techniques, specific to each type of training need, and implemented in collaboration with vocational training centres. They could be divided between working hours and employees' own time, with grants to cover travelling expenses.

In some cases consideration could be given to the granting of paid study leave, as envisaged in ILO Convention 140, while in the case of young workers fuller use could be made of the current system of work experience and training contracts, with - as the law requires - training given under the contract appropriate to the job being done.

In our view all of this is possible. In any event the present generation should not be given up for lost: this would be a serious mistake, wasting the great expertise which this generation has accumulated and which is essential to optimizing the sector's output. Certainly this implies a considerable effort on the part both of government and of employers and the workers themselves,

but it is perhaps the only way of avoiding losing the know-how of the Spanish textile and clothing industry and of being able to compete in terms of productivity and quality in the European context.

The financial instruments needed for a programme of this nature already exist, in that the Training and Employment Programme (PlanFIP) and the European Social Fund can be employed as funding frameworks, adapted to the requirements and objectives in question. The problem thus does not lie on the economic side: the need is rather to unify the will which already exists in various quarters, so that coordinated action can be taken to remedy the deficiencies in workforce training which stand in the way of consolidating the renewal of the Spanish textile and clothing industry in preparation for 1992 and the single European market.

### Acknowledgements

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## Notes

1. See O. Homs, J.A. Salmurri and X. Viladàs: Vocational Training in the Spanish Textile and Clothing Industry - the situation in Catalonia and País Valenciana, CEDEFOP, 1986.

2. For further information on textile training see M. Sevilla and E. Retuerto, The textile and clothing industry in Spain, a documentary basis for vocational training, CEDEFOP, 1986.

3. On vocational training outside the education system see M. Sevilla and E. Retuerto, op. cit., and Ministry of Labour and Social Security, The labour market in Spain in 1986 - current position and programmes of action, Madrid, 1987.

## Appendix 1: Report on Firm A

## Production

Firm A is in the combed wool sector and is located in an area where the textile industry is concentrated. It makes fancy products, to its own designs, and 25-40% of its output goes for export. The firm covers the whole production cycle, from dyeing and spinning to weaving and finishing. In the case of the spinning process our analysis was limited to a small part, since it was carried out at another location.

The firm's productive capacity is as follows:

- preparation, spinning: 2000 kg/day
- weaving: 39 looms, with an average output of 5250 m/day
- dyeing: 2000 kg/day of yarn and 1400 m/day of cloth
- finishing: 5000 m/day
- labour force: 270, of whom 20 are casual workers.

## Level 3 posts

As the accompanying structural diagram shows, Level 3 posts are to be found in the following sections:

In the marketing departments (domestic and export) there are no jobs with Level 3 characteristics, since given the size of the firm the organization is based on managerial staff directly assisted by administrative/office workers at Level 1/2.

In the administration department, with its four sections,

it could be argued that the accountant should be assigned to Level 3, but the personal characteristics of the accountant in this firm, together with the evolution of his career and the role he plays in the organization of the department, mean that he must be regarded as a member of management. The invoicing section and the administrative staff who work with the computer are simply office personnel directly under the authority of the departmental manager and may be assigned to Level 2. In the personnel section, however, the head of personnel is not regarded as a member of management since his role is rather that of staff organizer.

In the design department only the person responsible for production (with the rank of supervisor, though at a lower level than the other production supervisors) in the workshop which this department has at its disposal can be assigned to Level 3. This form of organization is not typical of firms in the industry, which do not usually provide the design department with a workshop for its own production. The other members of the department must be regarded as technicians or managers.

It is in the technical department that almost all the firm's Level 3 jobs are concentrated, distributed over five sections:

- in preparation, the supervisor and the three foremen.  
Two of them have assistants;
- in spinning, the supervisor, the foreman and two assistant foremen, and the yarn dyer;

- in weaving, the supervisor, the beam foreman, the general shift foreman with two assistants, and a coordinator with the rank of foreman for each shift;
- in dyeing and finishing, the piece dyer, the supervisor and the foremen for the wet and dry sections;
- in maintenance, the manager of the section.

In the production department, the person responsible for yarn stocks must be assigned to Level 3; those responsible for the other stores belong to Level 2.

#### Level 3 job analysis

1. The preparation department is structured as follows: under the supervisor there is a foreman for each of the three shifts. The morning and afternoon shift foremen each have an assistant, the night shift foreman does not. Under the morning and afternoon shift foremen there is also a further worker with supervisory responsibilities. In all there are 18-20 people in the department.

The functions of the assistant foremen are to lubricate the machines, to transport material within the section, to recover waste, to collect spare parts, to replace machine components and to keep an account of the waste for each batch (their only task of an administrative nature).

The two assistants' personal characteristics are very different: one of them is 57 years old, has been in the job for 18 years and has no capacity to rise further, while the other is 21 and has been with the firm for a

fortnight on an apprenticeship contract.

On the basis of this description of the assistant foremen it is not clear that they can be included in Level 3; rather are they unskilled workers who have been raised to a higher rank.

The foremen's functions are to share out the work among the various machines, to calculate the proportions of the simple mixtures on the basis of standard parameters (the more complex mixtures are the responsibility of the supervisor), to check the state of the machines and keep a note of bonus entitlements.

The personal details of the three foremen are as follows. The first is 54 years old, has been with the firm all his working life (first as craftsman, then as assistant and finally as foreman), has had no education and will not rise further in his employment. The second is 21 years old, has been with the firm for two years on an apprenticeship contract, has completed two years' second-level vocational training and the first year of an engineering course and is currently following a course at a textile school. The third is 48 years old, has been with the firm for 15 years, has had no training and will not be promoted further; he is having some difficulty in meeting all the requirements of his job.

The foremen's pay is around 1 500 000 pesetas per year, of which some 10% is made up of bonus payments. The gap

between foremen and assistants is minimal, to the point that the night-shift assistant receives more than the day-shift foremen.

In the view of the supervisor the foremen have to be mechanics with some basic knowledge of electrical and pneumatic engineering; familiarity with electronics is not yet necessary. Their function in the electrical field is to locate faults and to remedy the simplest ones. They need to have a general basic training if they are not to have difficulties with administrative formalities and to have some knowledge of information technology so that they can use the computer and read and understand its output. They also need to have some knowledge of textile and laboratory subjects, notably so that they understand their importance.

The supervisor's functions are half technical and half administrative. He acts as the personnel manager of his department. He calculates bonuses. He receives production orders and decides how they are to be executed. He shares out the work and carries out laboratory tests. In this particular case it is he who carries out the maintenance of the combs.

He began his working life at 14 as a greaser, took several evening courses at an industrial school, became a foreman's assistant in a different firm and later a foreman's assistant in a large firm. He entered his

present employment as a supervisor 26 years ago.

In the supervisor's view foremen need to have followed second-level vocational training, while a supervisor needs a university-level qualification but to be practical and prepared to get his hands dirty. In the future it will not be necessary to have an assistant for each foreman; instead the two day-shift foreman can share one assistant. The role of the individual (normally a woman) who supervises new personnel is tending to disappear.

In this department there are problems regarding the capacity of personnel to undertake any higher-level responsibilities. Among the unskilled and craft workers (eight women and three men) there is none who could be promoted, even though in the case of the women there are individuals who know their craft very well, but there are physical difficulties in the way of their carrying out a foreman's duties. Among the foremen and their assistants only the younger ones have any possibility of promotion.

b. As has already been mentioned, the spinning department is very small, since the firm has a complete spinning mill in another region which we were unable to observe. As to the department's structure, there is a foreman only for the first shift, the others being covered directly by the supervisor together with two assistant foremen; during the night three operatives are in charge of the machines without any supervisory staff.

The foreman's principal function, jointly with the supervisor, is to use the spray; he also has the typical tasks of a foreman, collecting waste, directing batch changes, ensuring the machines are cleaned and lubricated, taking responsibility for his section's material and packaging the yarn and directing a team of 12-13 operatives. Some of his functions are similar to those of an operative.

The foreman is 40 years old; he has been with the firm for 20 years and in his present post for 12. Previously he had been a spinner. He has had no education or training.

One of the assistant foremen, in charge of the spray, is 27 years old, is employed on a temporary contract, has been with the firm for six or seven years and has had some (but not a full) elementary education. In the supervisor's opinion he is not capable of further promotion. The other assistant, who is 38 years old, has been with the firm for two and a half years, on a casual basis; he has completed his elementary education and came from another firm where he worked as an operative. The supervisor considers that he may be suitable for promotion.

The functions of the supervisor are to direct the department, discussing any problems that arise with the technical manager. He is 62 years old and has been with the firm for 22 years; he is a mechanic, and has had an



elementary education. He began working in the industry at the age of 17.

After spinning some of the yarn is dyed; there is therefore another Level 3 post occupied by the dyer, with the rank of supervisor. Under him are a weigher (whose level lies between that of a foreman and a foreman's assistant), a laboratory assistant and several operatives. The dyer is 53 years old, has been with the firm for 16 years, and has a university-level qualification in chemistry.

c. The weaving department has 39 Sulzer machines currently being converted to computer control. There is one foreman per shift, each having two assistants. In addition, directly under the supervisor there is a coordinator for the warp beams with foreman status and two further coordinators, one for each daytime shift, coordinating winding and the warping section. Also directly under the supervisor are a technician (who acts as his assistant for maintenance purposes within the department), a greaser and a cleaner.

The foremen's main function is to give the order to start production. This involves setting the pattern, mounting it on the loom, preparing the sample, adjusting the machine to fit particular requirements and, having consulted with the weaving specialist, giving the order to start batch production. They have little autonomy in their work, being subject to detailed orders and not

acting on their own judgement, and faced with any problem must consult the supervisor. Together with the supervisor they carry out machine assembly tasks. Any problems arising with the machines are not resolved by the weavers (who are not skilled in this area); instead they call the foreman. If he can solve the problem he does so, but if the problem is not a common one he calls the supervisor.

There is a special foreman for the supervision of the warp beams who assists the supervisor in the distribution and coordination of work.

One of the foremen is 32 years old, has held the position for one year after ten years as a foreman's assistant; he has completed an elementary education. The second is 34 years old, is in the position on a trial basis after three years as an assistant and was formerly in the design section; he entered the firm as an unskilled worker in the warping section. The last is 42 years old, has been a foreman for eight years after two as an assistant, and spent ten years in the spinning department; he has received primary education and has followed occasional courses in an industrial school. The beam coordinator is 48 years old; he has been a foreman for twelve years and employed by the firm for eighteen. The two warping and winding coordinators are forty years old and have had a primary education.

The function of the assistant foremen is to load the looms

and set them in operation. They are generally experienced operatives, but in the supervisor's judgement only one of the six assistants could be promoted to a higher status. The current average age of the group is around 35 years.

The supervisor has overall responsibility for the department, checking bonuses, improving methods, carrying out production studies, directing the laboratory, drawing the selvage lettering, undertaking computer checks on production using the system now being installed, and supervising the repair of machines where the foreman is unable to solve the problem. One third of his time is spent on administrative functions in the office, one quarter on improving production methods and the remainder resolving problems in the workshop. He is 62 years old and has been with the firm for 35 years, 18 of them as supervisor. He entered the firm as first foreman. He has received industrial craft training.

The wage differential between a foreman and an assistant is small (around 1500 pesetas per week), while a supervisor's pay is at least twice that of a foreman.

Looking ahead, those responsible for the department consider that foremen should have second-level vocational training with its main basis in mechanical engineering (this remains the fundamental requirement, since most of the breakdowns in the section are mechanical in nature), with some additional knowledge and skills in electrical

engineering and electronics.

With regard to the supervisor, it is felt that he should have a level of training intermediate between a university first degree and second-level vocational training while remaining fundamentally a practical man. He should also have sufficient knowledge of information technology to be able to work the computer.

d. In the dyeing and finishing department the supervisor has under him the dyer and two foremen for each of the two shifts in the wet and dry sections. There is also an operative with responsibility for quality control and an office worker for each shift. The dyer has one assistant for each shift. There is one operative per shift under the wet-section supervisor and four under the dry-section supervisor. There is an additional operative on the night shift to work the thermal fixing machine.

The dyer (who is concerned with fabrics and is therefore to be distinguished from the yarn dyer) has technical and organizational responsibilities, with considerable autonomy in his work. Though in the structure of the department his post is located beneath that of the supervisor, in fact he has great freedom, deciding on the basis of the supervisor's orders what processes and dyes are to be used. Only where new products are to be processed or new dyes used does he consult the supervisor and discuss the decisions to be reached, especially in connection with the cost of the dyes. The dyer shares

out the work among the machines. His job involves little authority. Around one fifth of his time is devoted to administrative tasks. Dyers are usually individuals who have been trained within the firm and are highly specialized in the processes which the firm carries out.

The organization of the dyeing section depends on the size of the firm and the type of product. Where more than 300 pieces a day are processed there is usually a section head and an assistant who is also a dyer. Where wool fibres are used automation is difficult, while in the case of cotton it is more feasible for longer production runs.

Innovations expected in this section are further process automation and computerization and the appearance of new products and processes more suited to the more delicate articles now current. Information on these new products and processes is provided by their suppliers. The dyer, jointly with the supervisor, has to decide whether the new process is to be followed, applying it in accordance with the supplier's instructions. This is the principal channel through which innovations are made and staff trained.

With these prospects in view the dyer of the future will have to be able to use computer programs and will need to be trained appropriately.

The dyer is 45 years old, having entered the firm as a dyer four years ago. He had previously worked in other

firms, starting as an apprentice dyer. He has had a secondary education and industrial craft training, albeit without completing the course. He is in a special position as regards pay, earning around 400 000 pesetas per year more than the foremen in his department.

The wet-section foreman has little autonomy in his work, in which organizational and manual tasks alternate. His functions are to assign pieces to processes, to move pieces, to prepare cleaning solutions and products and to lubricate and clean machines. He has no authority over other workers. His autonomy is very limited, in that he decides only certain aspects of the organization of work; the supervisor intervenes directly if problems arise or if new products are introduced. The supervisor would like him to exercise greater initiative, but in this particular case he does not do so. He has scarcely any administrative functions, simply to check the pieces going through the machine.

The firm's two foremen are both 45 years old; one has been with the firm for 15 years and a foreman for ten, while the other has been with the firm for 20 years and a foreman for 12. Both had previously been unskilled workers. Their pay is not high, around 80 000 pesetas a month, with a bonus representing a third of their total pay. Neither has had any education and both have problems with writing correctly.

The functions of the dry-section foremen are very similar

to those of their opposite number in the wet section, but with somewhat more authority since they have four operatives under them. Their job involves assigning pieces to processes, organizing the work, distributing greasing tasks and organizing cleaning shifts. They are responsible for repairs but do not carry them out themselves, since this work is either subcontracted or performed by the firm's maintenance team. There are fewer problems in the dry section, with the result that the foreman takes more decisions and in a certain sense is more autonomous, albeit with great limitations. One such is the fact that one foreman does not succeed in imposing his authority on his team and prefers to avoid responsibility for giving orders. For the organization of the cleaning shifts the foreman indicates the machines that need cleaning, but it is the supervisor who decides who is to make up the cleaning team.

One of the foremen is 55 years old, having spent 30 years in the firm and 20 in the job; the other is 42 years old, having spent 20 years in the firm and ten years in the job. Both have had only a primary education but have great interest in learning, and while they would have problems in following an electronics course they could cope with one in electrical engineering. The supervisor considers that if they were given opportunities and training they could achieve promotion and themselves become supervisors. However, they cannot follow a course during working hours because the machinery requires their constant presence. Their pay is the same as that of the

wet-section foremen.

In the medium term both the wet and dry sections could change through greater automation. The firm regards the two sections' supervisors as skilled craftsmen with some measure of authority whose jobs are on the borderline between Level 2 and Level 3. Factors such as their personal circumstances, their unskilled origins and their pay and training position may explain the observed limitations on their autonomy and responsibility.

In the larger firms processing more than 300 pieces per day there is usually a supervisor each for the wet and dry sections, both under a technical manager. In theory, and depending on the productive characteristics of the firm, there would be no difficulty in merging the two sections; in the firm studied this would not be feasible, however, given the type of work being done.

The supervisor is responsible for the department, acting as head of personnel within it (and in this particular case also calculating bonus payments), maintaining links with the marketing department and working closely with the design department. He receives the production orders (with an indication of their urgency) and on that basis organizes the entire work of the department. He undertakes studies of processes, production, methods, applications and the development of types and models of finished goods. He decides which products are to be used. He personally carries out quality control, item by



item. The operative checks for and points out faults and the supervisor puts them right. Between 25% and 40% of his time is taken up with administrative, office or study functions, and the remainder with the exercise of authority and concern with staff and machinery. He has received a university-level training in the textile field and is 41 years old, having spent 21 years in his profession and ten within the firm.

Regarding the future development of his work he believes that with increased automation and more continuous operation part of his job could be devolved to foremen, but only if they were more highly skilled and qualified than those he currently has.

e. The maintenance department comprises a head of maintenance, under whom there are two stokers, an electrician with an operative and an apprentice, a mechanic and a bricklayer with a labourer. In this case only the head of the department can be regarded as belonging to Level 3, the remainder being tradesmen at Level 2. The firm's services (cleaning, drivers etc.) come under the same department.

The maintenance team only maintains the machines which are most basic to the firm's operation (boilers, compressors, water pumps etc.); in other cases each department is expected to keep its own equipment in good condition.

When a breakdown occurs in a machine in any department the

foreman or supervisor is the first to intervene; if he is unsuccessful he informs the head of maintenance or calls in a technical team from outside the firm. In the case of electronic equipment the firm has service contracts with its suppliers. The different kinds of technology which exist within the firm complicate the work of the maintenance department, since it has to cover a very wide range of types of repair.

The tendency is for each department to specialize in its own maintenance. In future the maintenance team will concentrate on maintaining the firm's basic plant rather than its specialized equipment. Maintenance and repair work which cannot be carried out within the department concerned is tending to be contracted out. It should be borne in mind that the firm is located in an area where there are many textile firms, so that a wide range of specialized services are available.

The firm is considering abolishing the post of head of maintenance when its current holder retires; the maintenance team will then be directly under the head of materials purchasing.

The members of the maintenance team have been trained within the firm. The electrician has had first-level vocational training but did not complete a second-level course. He is interested in electronics and can generally detect (more or less by guesswork) what component has failed in an electronic circuit, since

faults tend to recur. The mechanic has had a practical training and considerable experience; it is he who knows the whole situation of the factory and its problems. At present one of the stokers is being trained to be able to stand in for the mechanic. He has had a primary education.

The head of the team, who is 63 years old, has had a university-level training in mechanical engineering. He has been head of maintenance for 24 years, having previously spent 16 years in a major chemical firm.

The head of the team has no complaints regarding its members' training, since they have been trained in accordance with the firm's needs and do their work well.

f. As has already been noted, we did not find any posts in the administration department which could be assigned to Level 3. The only real doubt relates to the post of personnel manager who could be included if he is regarded as an intermediate employee rather than a member of the management team; however, we feel that the nature of his work places him on the borderline between Level 3 and Level 4. Another candidate for Level 3 is the person in charge of invoicing, given that he has a measure of autonomy in his work and has a number of people under his authority. However, office automation is reducing the number of staff needed for invoicing purposes and hence the autonomy and responsibility of this administrative employee.

g. In the department of production the only Level 3 worker is the person responsible for yarn stocks, the firm's most important store section. He has control over incoming and outgoing goods and directs the team of operatives under his responsibility. The section's working is computerized, and it is he who operates the computer. He is 35 years old and has been with the firm for 15 years. He started in the despatch department and is regarded as a person with considerable initiative. He has had only a basic education.

The other raw-material store section is less complex and has less movement in and out, so that the job of the person responsible for it can be assigned to Level 2.

### Future trends and training needs

The organizational structure of any firm is greatly affected by the specific situations at any particular time of its staff and the relations existing between them. In the firm a number of changes are envisaged in the immediate future.

One of these is the merger of the preparation and spinning departments, given the latter's relative smallness in the factory studied. The current preparation supervisor would then direct the whole merged department, with the preparation and spinning foremen retaining their positions. It is envisaged that one of the two assistants would be promoted to foreman on the evening shift, while the other, on split shift, would be at the service of the two day-time foremen. The post of person supervising new employees would disappear. One foreman for the whole department will certainly be sufficient on the night shift.

When the current structure was analysed jointly with the firm's managers there emerged a number of respects in which the organization might evolve in the future, though as yet no decisions have been taken.

1. With regard to the supervisors' occupational profile, discussion centres on their possible replacement by technical managers: that is, is the post of supervisor essential when there is a technical manager? The

conclusion is not clear, since the supervisors' profile is closely geared to the firm's day-to-day needs: they are key members of staff, virtually irreplaceable within the organization owing to their great experience and detailed knowledge of the situation and problems of their departments. The theoretical possibility of their replacement by a technical manager could be contemplated only if the latter had considerable practical experience and if the foremen in post had a higher level of skill and qualification than is currently the case.

If the firm needed to take on a supervisor, the job description would specify first and foremost a person with considerable experience, secondly with ability to exercise authority and third with a level of education and training which would in no case be higher than second-level vocational training. The firm would seek such a person among other firms' staff before looking to the external labour market.

2. With regard to foremen, in the finishing department it would be possible to merge the wet and dry sections under a single foreman; while the firm is not planning to make such a change it is nevertheless regarded as feasible.

In the preparation and spinning department it is the foreman who undertakes most technical operations affecting the machines, while in the weaving department it is the assistant to the person in charge. In the latter section increased automation and the application of computerized

control systems could allow the elimination of certain foreman posts, e.g. that of the warp beam foreman, or the reduction to a single foreman for coordinating winding and warping. However, in view of the type of products and their variety the firm considers that several are needed on each shift in this department.

The foremen's main function relates to batch changes and the machine adjustments. He thus directly executes the production orders for each batch. His importance is greatest in firms which produce a wide variety of products in short runs; it is least in those producing few products in long runs, where his profile approaches that of a skilled worker with authority over a small team. The future development of the foreman's profile is closely linked to the need for skilled staff with special knowledge of a series of processes which will always be necessary. His position of authority is more doubtful, as automation reduces the size of operative teams.

If the firm needed to take on a foreman, the job description would specify someone with second-level vocational training, if possible with experience; this would not be essential, however, since training could be given within the firm.

3. Assistant foremen are mechanics by trade who have the job of executing the foreman's orders and helping him in his technical functions. In practice they are operatives with a measure of technical training or experience. A job

description would specify a mechanic with some training, but this is not essential since the necessary knowledge and skills could be acquired through experience.

With regard to current continuing training needs for workers at the levels studied, the most important centre on technical aspects, fundamentally those relating to textile theory and issues of quality. In the recent past the firm has organized intermediate staff training courses on personnel management, the direction of groups and human relations. These courses were provided within the firm during working hours and were run by institutions specializing in this type of training.

As regards general technical training, however, the firm considers that this should take place outside working hours and on a voluntary basis. Highly specialized courses could be provided at appropriate centres or within supplying firms (as in the case of the courses provided by the manufacturer of Sulzer machines).



## Appendix 2: Report on Firm B

## Production

This is a group of firms in the carded wool spinning sector which markets its products mainly within Spain. It is made up of one firm that produces carded yarns and another that markets them. The group also includes another production centre elsewhere in the country which we did not observe.

Output is of the order of 10 000 kilograms of yarn per week.

This is one of the most important industrial groups in Spain in the carding sector. It may be regarded as possessing advanced technology. Its equipment comprises:

- 4 sets of carding equipment,
- 3 continuous mules with a total of 610 spindles
- 7 self-acting mules with a total of 3370 spindles.

The firm's workforce (those directly concerned with production) is made up of 20 persons per shift, namely:

- one shift overseer,
- one foreman for the carding machines,
- one assistant foreman for the carding machines,
- one spinning foreman,
- one assistant spinning foreman,
- six skilled workers for the carding machines,
- nine skilled workers for the spinning machines (varying depending on whether it is high or low season).

The firm operates a three-shift system.

In addition there are the following staff not directly concerned with production:

- a manager,
- a technical manager,
- a laboratory technician,
- a person in charge of stores,
- four store operatives,
- eight office staff.

The structure of the firm is shown in table 1.

## 2. Level 3 posts

Within this firm the Level 3 posts are those of the overseers, foremen and assistant foremen.

### 2.1. Shift overseer

The shift overseer has full responsibility for production, quality and staff. He decides, on the basis of the orders coming in, what spinning process is to be used and determines the technological parameters of the entire process. He transmits the orders to his subordinates verbally. The firm sees the need for the transmission of orders in written and fully explicit form.

The overseer checks throughout the process that the required standard of quality is achieved. To this end he works in close contact with the quality-control laboratory technician. In the firm's view he should strengthen his

contact with his subordinates so that they have a clear idea of the effect than any manufacturing defect in spinning can have on the finished product and the economic consequences that that can represent.

It is desirable that the overseer should have some familiarity with information technology so that he can use a personal computer for the purpose of production and quality control. It is also useful for him to have some notion of statistics.

Maintenance is the responsibility of the shift overseer, with the help of the foremen. Where there is a large amount of maintenance work to be done assistance is obtained from outside workshops.

All employees directly concerned with production work continuous shifts of eight hours each day.

The firm would like to see preventive mainenance strengthened, reducing the need to repair breakdowns and thereby interrupt production. To this end the shift overseer needs to be familiar with mechanical, electrical, electronic and pneumatic engineering at the level of practical application.

It is important that he should have control of daily production and be capable of carrying out studies to optimize production, taking account of the personnel available, the materials to be processed and the level of

quality demanded. He must be fully familiar with new spinning systems and able to evaluate the advantages and drawbacks associated with their use.

#### 2.2. Stores overseer

The stores overseer is responsible for the movement of raw materials and finished yarns in the stores. He plans dispatches to the factories which wind and clean the yarn and organizes dispatches to customers.

#### 2.3. Foremen

The foremen work with the shift overseer on the repair of minor breakdowns.

They are responsible for ensuring that everything is ready for a new batch (i.e. that machines are cleaned and set up as required) and for monitoring the entire production process, informing the shift overseer of any departure in the quality obtained from that required.

They have very direct contacts with the workers.

They need to have basic knowledge of textile technology.

#### 2.4. Assistant foreman

The assistant foreman helps the foreman at all times, replacing him as necessary.

### 3. Level 3 job analysis

The Level 3 posts which exist in the firm are shown in table 2. Table 3 shows the various gross rates of pay, in pesetas per year.

### 4. Future training needs

There is a need for greater basic knowledge of textile technology as applied to spinning in the carding sector.

There is a need among those currently holding Level 3 posts for improved ability to organize and to exercise authority.

The overseer needs to have some familiarity with information technology so that he can operate the personal computer used for production and quality control purposes.

In the immediate future it is essential that Level 3 staff have some basic knowledge of electrical, electronic and pneumatic engineering so that they can operate the new industrial equipment without difficulty.

All Level 3 staff need to be familiar with new spinning systems and to be able to evaluate the advantages and drawbacks associated with their use.

Table 1. Structure of Firm B

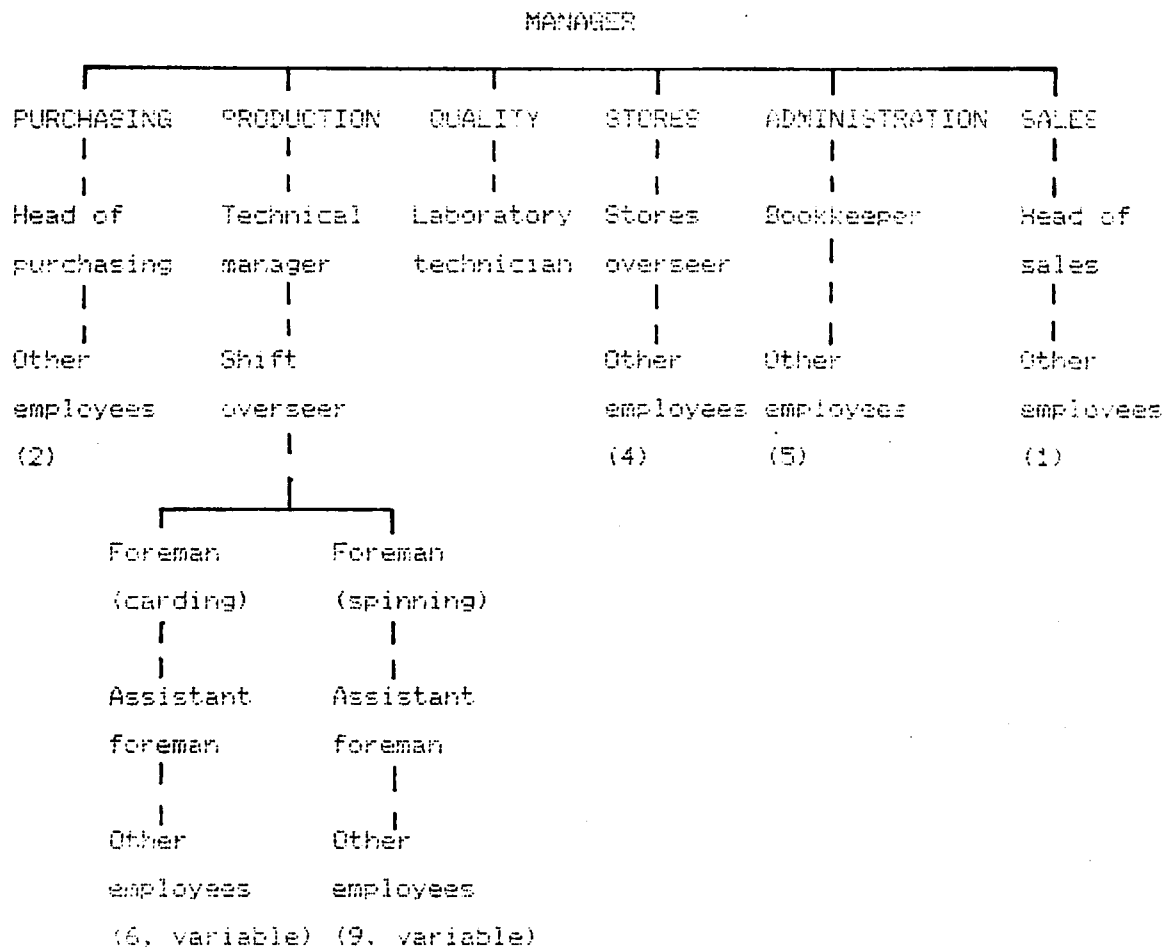


Table 2. Level 3 job analysis

POST	AGE	SEX	EDUCATIONAL LEVEL	TIME WITH FIRM (YEARS)	TIME IN JOB (YEARS)
PRODUCTION					
SHIFT OVERSEER					
Day <sup>1</sup>	49/35	M	Elementary	22/10	4/1
Night	63	M	Elementary	22	4
STORES OVERSEER					
	35	M	Elementary	12	4
FOREMAN					
Day <sup>2</sup>					
Shift 1	55/45	M	Elementary	22/18	18/11
Shift 2	40/42	M	Elementary	18/11	8/6
Night <sup>2</sup>	51/43	M	Elementary	18/14	10/8
ASSISTANT FOREMAN					
Day <sup>2</sup>					
Shift 1	44/40	M	Elementary	17/11	12/8
Shift 2	36/34	M	Elementary	13/10	9/6
Night <sup>2</sup>	43/42	M	Elementary	14/9	8/6

1. First and second shifts respectively.

2. Carding and spinning machines.

All post-holders began their careers as operatives.

Table 3. Gross annual pay

POST	PAY (pesetas per year)
Production shift overseer	
Day	1 700 000
Night	2 000 000
Stores overseer	1 400 000
Foreman	
Day	1 400 000
Night	1 650 000
Assistant foreman	
Day	1 250 000
Night	1 450 000



### Appendix 3. Report on Firm C

#### Production

This is a large firm, encompassing the entire process of production from spinning through weaving and finishing to clothing manufacture. It is in the cotton sector, and is located in an area where the textile and clothing industry is concentrated, although its ten factories are situated in small villages in the area and in other regions. Its factories are specialized by process, product and brand.

Its main purpose is the manufacture of clothing, although it also sells excess output of yarn, fabric or finished goods. A significant proportion of its output goes for export.

Its workforce totals 3083, of whom just over half are permanent.

#### Level 3 posts

The structure of the firm comprises central services (general management, administration and marketing, together with central stores for the despatch of products to clients) and decentralized production units. This type of organization, coupled with the firm's sheer size, entails an unusual structure for intermediate personnel, almost all of whom can be assigned to Level 3.

The staff categories customarily assigned to Level 3 are to be found in the production process itself (supervisors,

overseers and foremen in spinning and weaving, section heads in clothing manufacture), but it is within the central services that a specific group of intermediate staff classifiable as Level 3 may be defined. These are the assistants to the managers of the various departments. In the design department, for instance, the manager clearly forms part of the management team, but the assistant in charge of pattern-making and the two shift overseers may be regarded as belonging to Level 3.

The situation in the central stores is similar: the manager is part of management, but the heads of the teams in each of the sections into which the stores are divided belong to Level 3.

The situation in the marketing department is somewhat different. The product manager is clearly part of management, but the department administrative manager and the heads of sales are mid-way between management and the intermediate staff classifiable as Level 3. The firm considers them to be more than intermediate employees, and certainly they can be regarded as lower-ranking managerial staff. Immediately under them are administrative auxiliaries belonging to Level 2.

In the department of administration there is a double tier of management, comprising the general financial manager and the personnel, administration, finance and general services managers. The assistants to this second tier (the assistant personnel manager, the head of national

marketing administration etc.) are intermediate employees who can be assigned to Level 3.

It may be concluded that for a firm of this size and with these characteristics the category of assistants to the departmental managers can be assigned to Level 3. In a smaller (i.e. medium or small) firm this level does not exist.

The persons occupying these posts are generally relatively young, aged around 30; having completed secondary education (academic or in some cases vocational-administrative) they have acquired the necessary specialization through experience, achieving promotion to their present status.

#### Level 3 job analysis

The analysis of the Level 3 posts focused on three factories, concerned respectively with clothing manufacture, spinning and weaving.

a. Clothing manufacture. The output of the clothing factory is 3000 items per day; it has a workforce of 231, rising to 270 when operating at full capacity. Its organization is fairly simple, comprising three levels, namely management, intermediate (Level 3) personnel and operatives. This structure can be analysed from the overall viewpoint of the firm as a whole or from the isolated one of the individual factory. We have preferred the latter, since it is the one considered by

the firm and is more useful in comparisons with other, smaller, firms. It will be observed that some posts regarded by the firm as managerial at the level of the factory are, from the viewpoint of the firm as a whole, typical of an intermediate level and in their content can be considered to belong to Level 3.

The factory's management team comprises the manager and the heads of the various departments, namely the production, organization, quality, maintenance and final sections. This last has been gaining in importance on account of the firm's policy of raising standards and the increased attention devoted to the finishing process, with the result that it is now regarded as a department in its own right and its head as a member of the management team. Simultaneously the quality department had lost importance, not because quality is considered less important but because the policy of raising standards has been adopted throughout the firm.

In the production department the posts belonging to Level 3 are those of the head of the cutting section and the heads of line.

The post of the head of the checking and cutting section is a practical and organizational one in which technical knowledge is less important than organizational ability. It involves checking the quality of the pieces of fabric to be cut and executing production orders, with great care being taken over the cutting process owing to the wide

variety of types and models of clothing being cut out. Cutting is carried out manually. The post is held by a man of 28, who has been with the firm for 12 years; he has had an elementary education, but no specific vocational training.

The four production lines are grouped in two pairs, the first pair being devoted to standard products and long runs and the second to a greater variety of goods produced in shorter runs. For each pair of lines there is a section head whose job is to direct the teams of female operatives (around 65 in each group), organizing the line and assigning the operatives to jobs in the light of the work to be done. He is also responsible for quality control in his section. His assistant is someone who is preparing to take over as section head and who can deputize for him and help him at peak times. The two section heads are aged 33 and 32 and have been with the firm for 14 and seven years respectively. Their assistants include a woman - the only woman in a post of responsibility in the factory - who is 24 and has been with the firm for nine years; the other is a man who has been with the firm for two years and is 32 years old. None of the four has had any specific vocational training, but they have had a basic elementary education.

Within the final section the Level 3 posts are those of the heads of laundry, pressing and stores.

The main function of the head of laundry is the

coordination of the four shifts which operate the laundry and the technical direction of the section. This section is important, in that washing is a vital element in the finishing process. The post is held by a 28-year-old who has been with the firm for ten years and who has received primary education but no specific vocational training.

The head of pressing is responsible for pressing and labelling and the final check on the product. This is a key job, since it concerns the final check on the quality of the item of clothing and its final presentation. It is held by a 34-year-old who has been with the firm for 12 years and who has had a primary education.

The head of stores monitors incoming and outgoing goods. In view of the complexity of the movement of so many different products the firm regards this as a highly responsible position and regards its holder as intermediate staff. It is held by a 28-year-old who has been with the firm for 10 years and who has had a primary education.

There is no-one in the remaining departments who can be assigned to Level 3, if we exclude the head of maintenance on account of the managerial responsibility given him by the firm. The only possible exception is the person in charge of compiling the range of samples; while the task formally involves assisting the manager, given its complexity, the large number of different models (over 60) and the relative autonomy of the work of compilation (it

takes place within the production line), this person could also perhaps be assigned to Level 3.

As the age of these intermediate employees indicates, this factory has a very youthful workforce. In general the workers' average age in the clothing industry is lower than in other manufacturing sectors, since the age of entry into employment (especially for girls) is very low, in the 16-18 range. This implies a labour force which adapts easily to new situations. It should be borne in mind that the factory currently has a stable workforce, whereas until very recently it was in a phase of rapid growth. These two factors - youth and rapid growth - have played an important part in determining the current pattern of labour skills, namely one in which a workforce without any specific textile training has effectively taught itself on the basis of practical experience and by dealing with problems as they have arisen. It should be remembered that there is no-one in the factory (not even in the management team) who is qualified in the whole process of clothes manufacture and who has specialized knowledge of pattern-making and scaling. Because the firm's design services are centralized, the factories are simply production centres.

For example, the heads of section of the production line cannot sew professionally, though to introduce them to the field every section head (and even the other members of the management team) have to be able to make a complete item of clothing for their own use. Another example is

provided by the fact that, for internal organizational reasons, the position of head of the cutting section had to be assigned to a member of the office staff who was not directly familiar with the trade.

According to the factory managers the clothing industry is such that the problems arising are not so much technical as organizational in nature, so that the qualities needed by intermediate personnel relate more to organization and the ability to exercise authority than to vocational and technical skills.

To this must be added the effect of the generally low pay levels in the clothing industry on the incentive which individuals have to take on positions of responsibility. In the view of the factory managers young people of outstanding ability usually leave the industry if they are not offered a real career and better pay. This applies less strongly in the case of women; whether on account of their poorer career opportunities in other sectors or of the secondary importance of their income in the household budget, women with personal and professional abilities tend to stay in their jobs. Men with similar characteristics, in contrast, either occupy positions of responsibility or leave the industry.

A sewing operative usually earns between 50 000 and 55 000 pesetas per month, with a bonus of 10% of their wages. Overseers' pay ranges from 90 000 to 120 000 pesetas per month.



The self-training approach is also visible in the method of preparing individuals to occupy posts of responsibility. This involves removing the person from their usual job and moving them through the different sections of the factory with the aim of giving them an overall view of the production process and preparing them mentally for their new responsibilities, thus facilitating their placement in the new job and their recognition by colleagues. In some cases this process has lasted a year.

Another example of self-training is provided by the courses organized within the factory. The knowledge which a particular individual possesses serves as the basis for a course, organized outside working hours, which others attend voluntarily. In this way computer courses have been given by an employee interested in the subject who has taught his colleagues and who is preparing the programs necessary for the computerization of stock management (on his own account and outside his normal work).

The factory currently only has an old computer for stock management, but there are plans for the computerization of all production information.

The management of the factory consider it desirable that all intermediate personnel should have received full training in clothing manufacture and some basic knowledge of mechanical engineering.

b. Firm C's cloth mill is situated in a small farming village some distance from the city where its headquarters are located. It has a workforce of 200 and is the area's main industry. Its productive capacity is 50 000 metres of fabric per day. It is 192 Donier and 36 double Sulzer looms.

Of the firm's two cloth mills, the one studied is purely a unit of production, since the technical and planning services are concentrated in the other factory; production orders are thus received in definitive form.

The boundaries of Level 3 and the category of intermediate personnel are somewhat imprecise in this factory. Its organizational structure is straightforward, with the three levels of management, intermediate staff and operatives, but the middle range is not sharply defined. On the one hand the management of the factory does not clearly identify the managerial team, and on the other we are again faced with the problem that individuals' jobs are out of line with their education and training. Certain positions clearly have managerial responsibilities which would place them within Level 4, but the educational level of the post-holders is often low (not extending beyond elementary education and without any vocational training). For that reason we look in this case at all those individuals who hold posts intermediate between manager and operative.

The factory is organized as follows: directly under the

manager are the head of organization (who can clearly be assigned to the managerial category, on account both of his planning and administrative functions and of his university-level education), the shift supervisors or overseers (with, under them, foremen), the head of the finishing section, the person in charge of stores and the head of maintenance.

The supervisors' main job is to organize their shift's work and workers; in fact they are shift overseers rather than supervisors. A fifth of their work is administrative in nature, the rest centring on the shopfloor. There are four supervisors, one for each shift. The night-shift supervisor is responsible for the entire factory, there being no managerial staff present. One of the supervisors is 49 years old and the other three are around 40; all have been with the firm for some ten years. All are former mechanics with no specific vocational training who have learned their trades within the firm.

Under each supervisor there are three foremen, two responsible for the Dornier machines (96 each) and one for the Sulzers. Their job is more technical in nature, involving preparing the machines for batch changes and making simple repairs. Each foreman has an assistant, and there are two further assistants on each shift to change machine components. The foremen's average age is around 35 and they have been with the firm for ten years. Almost all have a practical mechanical background, without

any specific vocational training.

The head of the finishing section is responsible for the finishing section where the fabric is texturized and for the final check on product quality. He is 35 years old and is an expert on electronics, albeit without any specific vocational training. He is very much self-taught, displaying interest and commitment, reading many books and following correspondence courses - a paradigm of the self-training occurring in this factory.

The stores overseer has the job of organizing the stores and keeping a check on incoming and outgoing goods. The post-holder is 35 years old, has been with the firm for three years and has completed second-level vocational training.

The head of maintenance is responsible for the maintenance team; his job involves maintaining and repairing the firm's basic plant and assisting the foremen with the repair of the machines. His team comprises two technicians, one specializing on the mechanical side and the other on the electrical. None of them have had any specific vocational training. The head of maintenance is 46 years old and has been with the firm for 16 years. He had only an elementary education but has followed courses in Germany organized by the suppliers of the firm's machinery.

As may be observed, the firm follows a policy of self-

training: indeed, "the company is the best school" is one of the management's mottos, with young people being taken on and trained on the job. To understand this policy one must bear in mind the factory's location, in a non-industrial environment and with a very limited labour market which cannot supply employees with the necessary training and job experience, so that the firm has to rely on its own efforts and its own workforce. One alternative might be to take on workers with appropriate training and/or experience in a more industrialized area and move them to the factory, but this involves problems. First, it is difficult to find suitable personnel willing to move to a remote farming village; second, it is expensive, in that extra incentives must be offered; and third, the firm's general policy in locating its factory in a village is precisely one of using local workers.

Indeed, such a personnel policy has its advantages: staff can be trained to meet the firm's specific needs; workers feel part of the firm; and there is the prospect of a career based on promotion. The manager of the factory states that he has no difficulty in replacing his intermediate personnel and that there is no generation gap after those currently holding positions of responsibility, as happens in firms located in other areas. For the next few years he will be able to meet his need for intermediate personnel from the factory's existing workforce.

This policy nevertheless brings with it some risk of

complacency in the present situation, making it difficult to cope with the changes which may have to be made in the future. The management of the factory appears to be conscious of this problem in stating that the current workforce will be able to learn through experience to deal with the innovations needing to be made, but if workers do not have some familiarity with a specialist field on entering the factory they will not acquire it on the basis of their practical work. It is also recognized that this system has its limitations as regards training in electronics, since while workers may learn to deal with recurring problems they cannot acquire any basic knowledge of electronics through their work.

In any event the management of the factory have confidence in their method and do not propose introducing changes in the near future which will alter this situation. The management's assessment of the effects of introducing electronics as a new production technology is noteworthy: they believe that loom technology will remain basically mechanical at least until the industry's next international trade fair and doubt the practicality of certain innovations in this area. If they had to take on foremen or maintenance technicians they would look for specialists in the mechanical rather than the electronic field. They see electronics as an option for the future but not the immediate future, and therefore something that does not affect them much.

An ambiguous position is taken regarding the training

levels to be required among new staff, shifting between the pragmatic view that current arrangements are satisfactory and the specification of desirable characteristics of a somewhat theoretical nature whose application in practice could be difficult.

The desirable characteristics are that all holders of positions of responsibility should have completed second-level vocational training, while heads of organization, supervisors and heads of maintenance should hold university-level qualifications. Indeed, in the case of maintenance there was even mention of a higher-level qualification.

At the same time it was felt that no vocational training need be required when appointing maintenance foremen or other personnel, or when appointing intermediate staff in general, since the problems encountered in this area related not so much to knowledge as to character and the ability to exercise authority and lead a team.

In any event, it was felt that academic qualifications should be accompanied by practical experience acquired within the firm during the period of study.

c. The firm's spinning mill is also located in a village, but of a more industrial nature and closer to the capital. Both spinning and dyeing are undertaken, and the mill's productive capacity is 50 000 kilograms per week.

The organizational structure is simple but unusual. The management team consists of a manager, under whom there are four departmental managers (for organization, dyeing, spinning and maintenance); in this case the head of maintenance is clearly regarded as a member of the management team.

The intermediate level comprises the supervisors, the overseers and the maintenance workshop heads. In this case the person responsible for stores cannot be regarded as belonging to Level 3.

The supervisors are the shift overseers and are responsible to the managers of both the dyeing and the spinning sections. That is, there is only one supervisor for each of the four shifts, taking responsibility for production in both sections. The four supervisors are aged 60, 42, 41 and 33 and have been with the firm for 10-12 years. One of them has a university-level textile qualification, two have received vocational training in mechanical engineering and the fourth has had only primary education. All four are former maintenance technicians who have been promoted.

Each supervisor has a shift foreman under him covering both the spinning and the dyeing sections. The foremen too are former maintenance technicians who have been promoted.

The factory's machinery is very modern and automated. It



is therefore interesting to consider the organization of the intermediate level that we have described, since it may offer pointers to the future. The progressive automation of spinning and dyeing makes these processes virtually continuous, transforming the traditional organization of the work. It is significant that in this case there is only one general shift overseer with organizational responsibility and one foreman with technical responsibility for the supervision of the process.

The management state that the workforce is very tightly geared to the factory's needs - perhaps excessively so, in that all workers are fully committed all the time - but this may well be a pointer to the future.

The maintenance department is divided into two workshops, one for the dyeing section and one for the spinning section. On each shift there are two technicians (one for mechanical and the other for electrical work) in the service of the two workshops. This generous staffing contrasts with the tight staffing of the production sections, though it too reflects the location of the factory (in an area where there are no external maintenance services).

Of the two workshop heads, one is 50 years old and the other 38; both have been with the firm for 16 years and have a background of vocational training in mechanical engineering.

As may be noted, the training background of this factory's intermediate staff is basically mechanical, reflecting the dominant technology. In this way continuity at the intermediate level is assured, mechanical knowledge being transmitted from generation to generation and learned through experience.

The management is satisfied with the results obtained through the policy of taking on young people with first-level vocational training (and, where possible, second-level), training them directly, through experience, on the job. In this way a reserve has been built up on which the firm can draw as and when new foremen are needed.

The dominant position of mechanical engineering has the drawback of a lack of specialization in textiles, which is instead built up gradually on the basis of experience but without reaching a satisfactory level. The most pressing training requirement is precisely in the area of textiles rather than in that of electronics and information technology, which do not as yet represent an immediate need.

The policy also has its drawbacks. When taking on a new supervisor the management hesitates between a foreman with experience and a university graduate in textile studies. One possible influence is the fact that it is very difficult to find engineers in the area, as it is to find electricians. In general salaries in the textile industry are lower than elsewhere, making it difficult to

attract specialized staff.

This shortcoming of the labour market means that the firm has to make use of its internal market or make the best of what is available outside. For example, the head of maintenance is a graduate in physical sciences.

Staff are trained on the job. In the case of this particular factory it is very difficult to send individuals on courses elsewhere because the workforce is so tightly geared to the firm's requirements and cover cannot be provided for an absent individual, particularly at the intermediate level.

#### Training policies

A common personnel policy may be observed in each of the factories studied which is strongly influenced by the firm's decision to locate outside the traditional industrial centres. This policy involves strengthening internal training through the experience accumulated as the individual achieves promotion at work. In such a case it is better to speak not of training but rather of a process of adaptation and apprenticeship at the place of work. As one senior manager told us, "necessity has become an obligation".

While this policy has undoubted benefits in times of organizational growth and technological stability, its weaknesses emerge when there is a need to adapt rapidly to

changes in technology, organization and production.

For example, the system gives good results as regards training personnel in the knowledge and skills which currently exist within a factory, but is unable to transmit new technologies which have yet to be introduced. This applies to the case, mentioned earlier, in which the training of mechanical engineers presented no problems but there were difficulties in obtaining specialists in electrical engineering and electronics.

Another problem is that self-training approaches leave many gaps which appear precisely in times of change, when a thorough and complete training is needed to deal with innovation. If such gaps are not filled, then this must be compensated in one way or another, whether by greater work efforts (i.e. longer working hours) or by closer supervision of operatives reflecting a lack of confidence in their abilities, producing tensions and conflicts within the organization. These phenomena were observed when the open-end technology was introduced: despite the short courses provided for the workforce there was a lack of basic training, and this translated into greater work efforts and labour problems.

Another problem encountered when individuals are promoted to posts for which they were not originally recruited is that their personal qualities may be unsuited to their eventual position. It often happens that a good operative or craft worker fails when promoted to a

position of responsibility: a good craftsman may make a bad foreman.

## Appendix 4

Questionnaire on the training of intermediate personnel

Where appropriate, questions should be answered by marking the correct response with a cross.

1. What products does the firm manufacture?

2. What processes are involved?

Spinning	Finishing	
Weaving	Knitting	
Dyeing	Clothing manufacture	
Printing	Other	Which?

3. Type of process:

Cotton	
Wool (worsted)	
Wool (semi-worsted)	
Wool (carded)	
Other	What?

4. What are the firm's size and capacity?

Total workforce	
Number of spindles	
Number of looms	
Kg or m per day dyed goods	
M per day printed or finished goods	
Items of clothing per day	
Other	What?

5. Defining intermediate staff as the level between management proper and operatives with neither responsibility nor authority, indicate in Table 1 the characteristics of the persons who can be assigned to this level in your firm. If the size of the firm is such that no separate category of intermediate staff can be identified, please complete the table (ignoring the last column) with reference to the persons exercising managerial functions.

6. What percentage of maintenance work is carried out by external contractors?

7. Where a machine breaks down, it is repaired by the supervisor and/or shift overseer?

Yes	No	Who?
-----	----	------

8. Does the firm have a quality control laboratory?

Yes	No
-----	----

9. Indicate in Table 2 the requirements applied by the firm in the selection of intermediate staff. If the size of the firm is such that no separate category of intermediate staff can be identified, please go to question 11, which should be answered with reference to the persons exercising managerial functions.

10. Does the workforce include persons who are in a position to take the place of existing intermediate staff?

Yes

No

If the answer is "no", please give further information.

11. Do you regard as adequate the training of your intermediate staff?

Yes

No

Please indicate the areas in which there are shortcomings.

12. Can intermediate staff be effectively trained for their job on the basis of primary education, industrial experience and short ad hoc training courses?

Yes

No

13. Are there adequate facilities for the training of intermediate staff in the Spanish textile industry?

Yes

No

14. Intermediate staff should receive their training:

Within the firm

In specialized centres

15. Should intermediate staff receive their training in working hours?

Yes

No

16. Please indicate what you would consider to be the basic features of a plan for the training of your intermediate staff.



Table 1. Characteristics of intermediate staff in your firm

	Number of persons -						Degree of autonomy* (1 - 10)				
	- by age			- by time with firm				- by educational background			
	<30	30-50	50+	<5yrs	5-15yrs	15+yrs	None	Primary	Sec/Voc	Univ.	Post-univ.
Intermediate production staff											
General supervisor											
Shift supervisor/overseer											
Head of maintenance/workshop											
Head of quality control											
Head of stores											
Head of section (clothing)											
Head of line (clothing)											
Foreman											
Intermediate staff in											
management											
administration											
marketing and design											
other											

\* Please indicate the degree of autonomy on a scale of 1-10 (10 being the greatest) for each type of intermediate staff.

Table 2. Requirements applied in the selection of intermediate staff

	Qualifications <sup>1</sup>			Other qualities <sup>2</sup>		
	No vocational qualification	Vocational education First-level	Vocational education Second-level	University	Occupational skills	Command skills
Intermediate production staff						
General supervisor						
Shift supervisor/overseer						
Head of maintenance/workshop						
Head of quality control						
Head of stores						
Head of section (clothing)						
Head of line (clothing)						
Foreman						
Intermediate staff in						
management						
administration						
marketing and design						
other						

1. Mark the appropriate box with a cross for each category of intermediate staff.
2. Mark in order of priority (1, 2, 3).

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**Occupational profiles and training requirements at Level 3 in the Spanish textile and clothing industry**

Oriol Homs Ferret, Feliu Marsal Aménos

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