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AUTHOR Pereira, Licinio Chainho; And Others
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ABSTRACT

A study examined the current needs of middle management in the textile and clothing industry in Portugal. Focus was on Level 3--foremen, overseers, and team leaders. Eight of 400 enterprises responded to the first questionnaire; 370 of 1,000 responded to the revised questionnaire. The following data were collected: number of employees according to economic activity, level of qualification, sex, enterprise size, district, subsector, length of service, total sales, pay category, and education. Higher education in textiles was provided at two universities. The only secondary courses with a textile component were those of a technical vocational nature: textiles and textile production, textile design, and textile chemistry. The Textile Industry Vocational Training Center and Clothing Industry Vocational Center were set up to satisfy the needs of the textile and clothing industry. Findings indicated that the industry depended on public education and upgrading activities organized by enterprises; very little training was provided by the Textile Sector Trade Unions. Foremen and overseers performed coordination and supervision of production, production management, equipment maintenance, and personnel management. Necessary training included general and basic secondary vocational-technical education and updating. Use of new technology was seen as contributing significantly towards improving the qualifications of Level 3 technicians. (Appendixes include the final questionnaire, respondent list, 30 data tables, and a 26-item bibliography.) (YLB)

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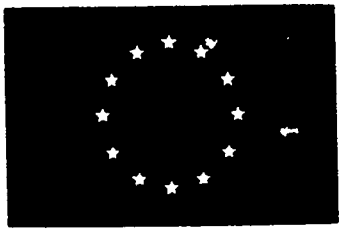

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Vocational profiles and training requirements of foremen and overseers in the textile/clothing sector in Portugal

Professor Dr Licinio Chainho Pereira,
vice-reitor da Universidade do Minho
Professor Dr António Alberto Cabeço Silva
Dr Mario Caldeira Dias

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Jean Monnet House, Bundesallee 22, **D-W-1000 Berlin 15**
Tel.: (030) 88 41 20; Telefax: (030) 88 41 22 22;
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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.

Tina Bertzeletou
Project Coordinator

Corado Politi
Deputy Director

I N D E X

Activity codes used in Tables

0.00	Poorly defined activities
0.0	Poorly defined activities
0.	Poorly defined activities
1.11	Agriculture, including livestock
1.12	Services related to agriculture
1.1	Agriculture and hunting/shooting
1.21	Forestry
1.22	Forestry exploitation
1.2	Forestry and forestry exploitation
1.30	Fisheries
1.3	Fisheries
1.	Agriculture, forestry, hunting/shooting, fisheries
2.10	Coal mining
2.1	Coal mining
2.20	Oil and natural gas extraction
2.2	Oil and natural gas extraction
2.30	Extraction of metallic minerals
2.3	Extraction of metallic minerals
2.90	Extraction of non-metallic minerals and stone for industrial purposes
2.9	Extraction of non-metallic minerals and stone for industrial purposes
2.	Extraction industries
3.11	Food industry
3.12	Food industry
3.13	Drink industry
3.14	Tobacco industry
3.1	Food, drink and tobacco industry
3.21	Textiles industry
3.22	Clothing manufacture, excluding footwear
3.23	Tanning industry, excluding footwear
3.26	Footwear manufacture, excluding moulded rubber
3.2	Textile, clothing and leather industries
3.31	Timber industry, excluding furniture
3.32	Furniture manufacture, with the exception of metal furniture
3.3	Wood and bark industry
3.41	Paper industry
3.42	Graphic arts and publishing
3.4	Paper, graphic arts and publishing industries
3.51	Manufacture of industrial chemicals
3.52	Manufacture of other chemicals
3.53	Oil refineries
3.54	Manufacture oil and coal derivatives
3.55	Rubber industry
3.56	Manufacture of plastic articles
3.5	Oil and coal derivatives and rubber and plastic chemical industries
3.61	Pottery manufacture
3.62	Manufacture of glassware
3.69	Manufacture of other non-metallic mineral products
3.6	Non-metallic mineral manufacturing industries

3.71	Basic iron and steel industries
3.72	Non-ferrous basic metal industries
3.7	Metallurgy industries
3.81	Manufacture of metal products, with the exception of machinery and transport equipment
3.82	Manufacture of non-electrical machinery
3.83	Manufacture of motors, equipment and other electrical apparatus
3.84	Manufacture of transport equipment
3.85	Manufacture of professional and scientific instruments, measuring and testing equipment, photographic and optical equipment
3.8	Manufacture of metal products and machinery, equipment and means of transport
3.90	Other processing industries
3.9	Other processing industries
3.	Processing industries
4.10	Electricity, gas, steam
4.1	Electricity, gas, steam
4.20	Water supply
4.2	Water supply
4.	Electricity, gas, water
5.00	Construction and public works
5.0	Construction and public works
5.	Construction and public works
6.10	Wholesaling
6.1	Wholesaling
6.20	Retailing
6.2	Retailing
6.31	Restaurants, cafes and similar activities
6.32	Hotels, guests houses, camping sites
6.3	Restaurants, hotels
6.	Wholesaling, retailing, restaurants, hotels
7.11	Land transport
7.12	Water transport
7.13	Air transport
7.19	Services relating to transport
7.1	Transport and storage
7.20	Communications
7.2	Communications
7.	Transport, storage, communications
8.10	Banks and other financial and monetary institutions
8.1	Banks and other financial and monetary institutions
8.20	Insurance
8.2	Insurance
8.31	Property operations
8.32	Provision of services to enterprises
8.33	Machinery and equipment hire
8.3	Property operations and services to enterprises
8.	Banks, insurance, property operations, services to enterprises
9.11	General services
9.13	Administration, education
9.15	Welfare and social services administration

9.1	Public administration and national defence
9.20	Sewerage and cleaning services
9.2	Sewerage and cleaning services
9.31	Education services
9.32	Scientific and research institutions
9.33	Health and veterinary services
9.34	Humanitarian and social assistance services
9.35	Economic associations and professional organisations
9.39	Other services to the community
9.3	Social and similar services to the community
9.41	Cinema, theatre, radio, television and associated activities
9.42	Libraries, museums, botanical and zoological gardens and other cultural services
9.49	Entertainment and recreation services
9.4	Recreation and cultural services
9.51	Repair services, various
9.52	Laundries and dyeworks
9.53	Domestic services
9.59	Personal services, various
9.5	Personal and domestic services
9.60	International organisations and other foreign institutions
9.6	International organisations and other foreign institutions
9.	Services to the community, social and personal services

3.21100	Preparation, spinning, weaving cotton fibres
3.21110	Preparation textile fibres
3.21120	Spinning, weaving, finishing wool and mixed fibres
3.21130	Spinning, weaving, finishing cotton and synthetic fibres
3.21141	Spinning, weaving, finishing jute and mixed fibres
3.21142	Spinning, weaving, finishing other soft fibres with the exception of jute
3.21150	Manufacture of trimmings
3.21160	Lace making
3.21190	Spinning, weaving, finishing textiles
3.21210	Manufacture canvas and similar fabric articles
3.21220	Manufacture of fabrics for domestic use
3.21230	Embroidery
3.21240	Sack making
3.21290	Manufacture textile articles
3.21300	Woven fabric manufacture
3.21400	Soft furnishing manufacture
3.21410	Carpet manufacture
3.21420	Manufacture of straw and similar material articles
3.21510	Cord and twine making
3.21520	Netmaking
3.21590	Rope making

3.21900	NE textile manufacture
3.21910	Oiled cloth manufacture
3.21920	Cutting and preparing skins
3.21990	Manufacture of other fabrics
3.22010	Making clothes to measure
3.22020	Mass production of clothes
3.22030	Hat making
3.22040	Manufacture of gloves and narrow fabrics
3.22090	Manufacture of clothes

I - INTRODUCTION/METHODOLOGY

1. This study is the result of an initiative by the European Centre for the Development of Vocational Training (CEDEFOP) and follows an earlier study on the role of vocational training in the development of the Textile and Clothing sector in Portugal, Spain and Greece since the characteristics of this sector are similar in these three countries, particularly in relation to its importance in their economies, employment and exports.

Integration into the Single Market raises problems of possible reduction of employment and at the same time the need to adapt to new market and product conditions which call for the use of vocational training suited to the new requirements, which may be maintenance and repair, specialist skills (dyeing, weaving, etc), marketing, design, management and production, etc.

Taking into consideration the Community framework relating to aid to enterprises and the responsibility of Governments in view of the importance of the sector and consequences of its restructuring, it becomes especially important to define the vocational training framework, particularly in respect of identification of qualification profiles and strategic vocational groups, their role in the sector and its development, implications of the low numbers, requirements which must be satisfied both in quantity and quality and resources to be made available to achieve the objectives.

CEDEFOP began to tackle this situation at Level 3, i.e. that of foremen, overseers and team leaders, thus assuming that staff at this level are important for the modernization and evolution of the sector in view of the objectives laid down in the current economic situation, particularly since it is employees at this level, who are engaged on specific procedures, who ensure that the guide lines for improvement in quality considered necessary are applied.

It is also true that as a result of adaptation to the 1992 Single Market with the planned restructuring in Portugal through PEDIP and, in respect of Portugal, Spain and Greece, through the EEC Commission these problems have priority since, although modernization of enterprises is inevitable, at the same time a change is anticipated in areas such as wages (at present low) and devaluation of the currency accompanied by cyclic fluctuations in the Market itself which up to now have been the bases for sustaining the sector.

2. The following table summarises the characteristics of staff at this level compared to other levels:

Staff structure according to skills

Levels	Duties	Training
1. Senior Managers	Definition of enterprise general policy or consultation in enterprise organisation. Creating or adapting technical, scientific and administrative methods and procedures.	Knowledge of planning and coordination of enterprise fundamental activities. Knowledge of planning and coordination of fundamental activities in the field in which the operates requiring study and investigation of very responsible highly technical.
2. Middle Managers 2.1 Administrative specialists 2.2 Production/other specialists	Organisation and adaptation of plans drawn up at higher level, directly associated with work of an executive nature.	Middle level technical vocational training for work of execution, study and planning in a well defined area or coordinating in several fields.
3. Section Leaders, foremen overseers and team leaders.	Directing groups of workers according to directives established at higher level but requiring knowledge of procedures.	Complete vocational training with specialisation in certain fields.
4. Highly skilled personnel 4.1 Administration sales & others 4.2 Production	Execution of duties requiring technical skill in general directives given at a higher level.	Complete vocational training which in addition to theoretical and practical knowledge, requires specialisation.
5. Skilled personnel 5.1 Administration 5.2 Sales 5.3 Production 5.4 Others	Execution of complex or delicate, normally non-routine duties in well defined general directives requiring knowledge of the level of execution	Complete vocational training in a job (intellectual or manual) which involves theoretical and practical knowledge.
6. Semi-skilled specialised) personnel 6.1 Administration sales & others 6.2 Production	Execution of already planned and defined, mechanical or manual relatively simple, normally routine and sometimes repetitive duties.	Vocational training in a limited field or practical elementary vocational knowledge.
7. Non-skilled (not differentiated) personnel 7.1 Administration, sales & others 7.2 Production	Various simple normally unspecified fully determined duties.	Knowledge of a practical nature which may be acquired in a short time.

3. It was agreed with CEDEFOP that this study will attempt to:

- Characterise Level 3 according to its size and numbers according to sub-sector, region, age and size of enterprise, sales and qualification level.

- Identify its role in the Textile and Clothing sector and the problems that the low numbers or incomplete training could cause.

- Describe existing training resources and their relationships.

- Make suggestions relating to their duties.

- Define future training requirements in terms of numbers of trainees and types of training.

- Make suggestions relating to the mechanisms, features and contents of training programmes to be provided by national institutions and agents and their coordination with Community organizations.

In order to achieve this a questionnaire was sent to 400 enterprises, assuming that they were aware of the current situation. After re-wording it the revised questionnaire was sent to 1 000 enterprises; replies were obtained from 80 and 370 respectively.

Geographically, the replies received were distributed as follows:

- Braga and Oporto district	79%
- Covilhã region	15%
- Remainder of the country	6%

Sectorially, the replies received were distributed as follows:

- Textile Sector	53%
- Clothing Sector	47%

According to enterprise size:

- Large enterprises	17%
- Small and medium enterprises	83%

The questionnaires are shown in Appendixes I.3.A and I.3.B

The institutions, social partners and enterprises identified by the names of contacts, designations and addresses in Appendix I.3.C. were then interviewed.

Discussions were held on two occasions with representatives of enterprises in the Vale do Ave (at Guimarães) and Beira Interior (at Covilhã) regions to discuss and test the questions in the questionnaire.

An attempt was also made to distinguish when the problem affected SMEs and when it affected large enterprises.

II - CHARACTERISATION OF LEVEL 3 ACCORDING TO THE D.E.M.E.S.S. (Departamento de Estatistica do Ministério do Emprego e Segurança Social [Ministry of Employment and Social Security Department of Statistics) EMPLOYMENT TABLES

EMPLOYMENT TABLES are a source of information which must be completed by enterprises, except most agriculture enterprises and public authorities. They relate to about 2 million workers and principally concern the characteristics of employees of enterprises, listing them by name in the respective employment tables. The year in question is 1987.

1. Number and percentage of persons according to the economic activity sector, level of qualification and sex.

In 1987 out of a total of 1 753 172 persons working for others registered as such, 160 193 were in the textile industries (3.21) and 96 891 in the clothing and footwear manufacture industries (3.22), of which 74 382 and 8 536 respectively were men.

Expressed as percentages, Level 3 accounted for 3.3% of the employees in sector 3.21 and 2.8% in sector 3.22, with a national average of 3.9%.

In absolute terms, Level 3 accounted for 5 323 and 2 716 employees respectively out of a total of 8 039.

The table in Appendix II.1.A shows the general situation expressed as percentages for the total number of men and women.

2. Numbers of employees in Level 3 per sector (to 6 digits) according to enterprise size and per district.

Out of the 8 039 employees in Level 3 the sub-sectors with the highest numbers were spinning, weaving and the finishing of cotton and synthetic fibres (2 565) and the manufacture of clothes (2 516); they also have the largest numbers of employees. The knitted fabric sub-sector has 1 040 and the two wool sub-sectors 815. They represent 32%, 31%, 13% and 10% of the total

respectively.

Out of the total number of workers these sub-sectors represent 31%, 31%, 15%, and 8% respectively.

Enterprises with over 500 workers (2.3% of the number of enterprises and 28% of employees) have 35% of Level 3 employees, enterprises with over 200 workers (6.9% of the number of enterprises and 45% of employees) have 60% and enterprises with over 100 employees (14.1% of the number of enterprises and 59% of employees) have 76%.

Note: The percentages in brackets are taken from the 1986 D.E.M.E.S.S. Employment Tables and the total refers to the extraction and processing industries.

In the clothing manufacture sub-sector on the other hand, most Level 3 employees are found in smaller enterprises, especially those with between 20 and 400 employees (77%).

(See Table Appendix II.2.A)

The numbers of Level 3 employees according to district are follows:

Aveiro	314
Leiria	126
Braga	2 599
Lisbon	639
Bragança	1
Portalegre	68
Castelo Branco	416
Oporto3 013	
Coimbra	239
Santarém	102
Evora	13
Setubal	155
Faro	1
Viana do Castelo	156
Guarda	263
Vila Real	4
Viseu	30

The tables showing the distribution of Level 3 employees per district, sub-sector and enterprise size are in Appendix II 2.B

3. Number of Level 3 employees per sub-sector and length of service in enterprise.

The following table summarises the above:

Sub-Sector	Total employees	Percentage of Employees +20yrs	+15yrs	+10yrs
Wool	815	43	64	78
Cotton	2 565	41	61	76
Knitted fabrics	1 040	20	35	48
Clothing Manufacture	2 516	8	21	38
TOTAL	8 039	27	44	59

The table in Appendix II.3.A gives a breakdown of the overall figures.

4. Number of Level 3 employees per sub-sector and total sales.

In the case of the most significant sub-sectors (wool, cotton, knitted fabrics and clothing mass production), there are a large number of employees in enterprises with total sales of 500 to 5 000 million escudos. In the cotton sub-sector there are 246 employees in enterprises with total sales of 10 000 to 24 999 million escudos and a very large number of employees in the mass production clothing sub-sector with total sales of under 500 million escudos.

The table in Appendix II.4.A gives a breakdown of the above.

5. Numbers of employees per sub-sector and pay category.

In the most representative sub-sectors there is a higher concentration of employees receiving 50 000 escudos per month and over, while the cotton sub-sector has the most employees earning over 65 000 escudos. There are fewer in the mass production clothing sub-sector.

About 3% of these employees earn less than the minimum wage, 43% earn over 50 000 escudos and 19% 65 000 escudos and over (the last category).

(See table in Appendix II.5.A with the respective breakdowns)

6. Number of Level 3 employees per sub-sector according to education.

The proportions receiving primary education or less were as follows:

wool	74%
cotton	72%
knitted fabrics	67%
clothing	72%

The equivalent percentages for those who attended intermediate courses, baccalaureate and degree courses were as follows:

wool	1.1%
cotton	2.4%
knitted fabrics	1.9%
clothing	0.7%

(See table in Appendix II.6.A)

III - TRAINING RESOURCES AT PRESENT AVAILABLE

III.1 - General considerations

The Textile and Clothing Industry in Portugal, which overall is responsible for about 30% of exports from the country and employs about 200 000 persons, is a major factor in our economy and, because of its potential, was a source of serious concern for the 10 countries in the European Community during the preparatory stage for our entry into the Common Market.

The Community had good reason for this concern. Portugal traditionally has a textile industry, with the knowledge and experience, the necessary know-how, cheap labour. It has some up to date enterprises with modern equipment, although not classed with the world's best.

Production from the textile sector is estimated at 400 to 500 million escudos per annum, of which over 3 million escudos worth is exported.

The Textile and Clothing industry includes the two sub-sectors, cotton and wool. The cotton sub-sector, which accounts for over 70% of the total, is concentrated in the Vale do Ave region, distributed fairly equally between the districts of Braga and Oporto. The wool sub-sector, which accounts for about 13% of the total, is principally in the Covilhã region and the remaining textile activities are in the region of Lisbon and districts of Setubal, Santarém, Aveiro, Coimbra and Portalegre.

Although this activity was very important to Portugal, there was no system of training of a vocational nature to support it.

Up to the Seventies there were only two colleges in the State Secondary Education system which provided vocational courses. They were known as Industrial and Commercial Colleges and were at Oporto, Guimarães and Covilhã.

The University Institute of Beira Interior (now the University of Beira Interior) was created at Covilha in 1974, as was the University of Minho at Braga and Guimarães which, because of their policy of responding to the requirements of enterprises in the regions in which they are located, included degree courses in Textile Engineering for the first time in Portugal. A characteristic of these regions is the high concentration of textile enterprises, to the extent that this activity appears as a monopoly industry. It should be noted that the Faculty of Engineering of the University of Oporto offered options relating to textiles but they only represented a relatively small proportion of the Mechanical Engineering and Chemical Engineering degree courses.

III.2 - Present structure of the training system in the Textile Sector

III.2.1 - Higher Education

Higher education in textiles is currently provided at the University of Minho in the Vale do Ave region (cotton growing region) and the University of Beira Interior in the Covilhã region (wool producing region).

Both Universities take their students from Secondary Education (12th year) through both the academic and the vocational technical channels. Entry depends on success in the "numerus clausus".

III.2.1.1 - University of Minho

Textile training at the University of Minho is concentrated principally on two textile engineering degree courses.

In a modern medium-size textile enterprise organised on a sectional basis there will be specialised departments cooperating to produce textiles of a design and quality to suit customers' requirements whenever required.

The University therefore offers a degree course in Textile Engineering to train senior staff responsible for the designing and planning of products to satisfy customers' requirements determined by sales departments, using the most economic and efficient production methods.

Textile engineering graduates are trained to work in enterprise technical departments, which are responsible for preparing the product specification and production sheets and for ensuring quality by checking that intermediate and finished products conform with the specifications.

From an analysis of the industrial profile of the region it will be seen that the small and medium enterprises predominate. In order to respond adequately not only in scientific and technological terms but also in human, social and economic terms to the characteristic requirements previously recognized, degree courses in Production Engineering were started in order to train senior technicians. As a result of their academic training and experience in technology and management they are able to understand the factors involved in the manufacture of products and can direct production processes to achieve more effective work coordination, taking into consideration quantity, quality and cost.

Of the existing variations in the Production Engineering degree courses, we would like to point out Textiles which, in view of its engineering/economics profile, should be popular with small and medium enterprises.

Students reading textiles for the Production Engineering degree must study product design techniques and the optimum use of labour, materials and equipment to ensure maximum productivity, calculation of quantities of raw materials to be purchased, finished product distribution chains, quality control of raw materials and finished products, analysis of manufacturing and marketing costs and personnel management.

Both degree courses cover 10 academic terms (5 years) with the last term including a compulsory practical training period, in almost all cases in an enterprise thus permitting association with and/or integration into the enterprise - even during the training period. The training period is supervised jointly by the enterprise and the University. At the end of the period students prepare a report with suggestions for solutions to a specific problem in the enterprise.

About 80 students register in the first year and each year about 40 students seek jobs. It should be noted that at present only about 20% of these are successful.

At post-graduate level the University of Minho also offers - although not on a regular basis - a "mestrado" in Textile Technology with the object of initiating research and development of textile processes, the training of lecturers for teaching textile subjects and

senior staff from enterprises and textile institutions where increased scientific and technological knowledge is required. The course lasts one year and enables those interested to remain part of the enterprise or institution of origin; the curriculum covers principally the areas of Science, Management and Textile Technology.

This level of training deserves more attention from the University of Minho since it permits highly qualified technicians to be trained in a short time in the field of textiles, starting as trainees with degrees in associated fields (General Engineering, Chemistry, Physics and Mathematics). These post-graduate technicians could become the managers for the technology structures at the initial stage, e.g. C.I.T.E.V.E. (Centro Tecnológico das Indústrias Têxteis e do Vestuário [Technology Centre for the Textile and Clothing Industries]) and other textile training centres and schools.

The Textile Technology Centre, which forms an interface between the University and textile enterprises, manages the human and material resources used to realize research and development projects financed by enterprises and by public organisations which provide aid for research and the transfer of technology.

In addition to applied research and development, the Textile Technology Centre provides various training activities designed for senior and middle grade technicians. These are short courses (between 30 and 50 hours) designed to upgrade and update enterprise managers.

Conferences and lectures of a technological nature are also held under the agreements between the University of Minho and other European Engineering Colleges (in France, Spain, Belgium and the UK) on topical subjects in the Textile Science and Technology field. These events are well attended by senior and middle managers from enterprises in the region.

III.2.1.2 - University of Beira Interior

Training in the field of textiles provided by the University of Beira Interior is mainly in the nature of higher education. At present two degree courses are offered, one in Textile Engineering and the other related to Clothing and Clothing Manufacture.

The Textile Engineering degree course is fairly similar to the degree of the University of Minho and consists of two years of basic subjects of which Mathematics, Physics, Chemistry, Electromechanics and Industrial Management are compulsory. The next three years cover

compulsory subjects, principally Textile Science and Technology but also some Chemistry, Electromechanics and Industrial Management. In order to ensure that the training of textile engineers is more relevant to their work, optional subjects are offered which are oriented towards textile processes; these are worth about 10% of the total credits required to obtain a degree. Consequently, graduates whose vocation is production process management will be able to select subjects in the field of Industrial Management instead of Textile Science and Technology, thus enabling their curriculum to be somewhat similar to that of a University of Minho degree in Production Engineering (Textiles) and more suited to the needs of small and medium textile enterprises.

About 40 students enrol each academic year but not all of those who finish the academic part complete the degree course since there is a considerable demand by enterprises for these partly trained students.

As a result of the integration of students who have completed the academic part of the course into enterprises to carry out the practical part of the curriculum, most of these students become actively involved in the work of enterprises and do not submit their final reports - one of the conditions required to obtain a degree. This also occurs with students on the University of Minho Textile Engineering degree course.

The University of Beira Interior, in association with individual enterprises, associations in the sector and organisations providing aid for technology resource, also provides training and upgrading training for middle and senior managers.

These activities, in which teaching staff from foreign universities with which the University of Beira Interior has agreements (principally the United States, France and Spain) collaborate, cover all areas of Textile Technology, with particular emphasis on Spinning, Weaving, Colorimetry and Clothing Manufacture and are very popular with textile technicians.

This University also receives aid from the E.S.F to provide medium length courses (150 hours) for specialists aged over 25 from small and medium enterprises in the areas of Spinning, Weaving, Quality Control, Dyeing and Clothing Manufacture.

III.3 - Secondary Education

Secondary Education (6 years) from the 7th to the 12th year consists of Unified Secondary Education (7th to 9th

year) and Complementary Secondary Education (10th to 12th year). Student workers can even attend Secondary Education at evening classes.

A reform introduced in the 1983/84 academic year made provision for three different types of course at Complementary Education level:

a) Academic courses for studying at a higher level, divided into 5 different areas;

b) Vocational courses for providing vocational qualifications for the different activity sectors. These courses will last for one academic year followed by a practical period, with teaching supervision by staff from the college and specialists from enterprises at which the students work. This type of course has not achieved the success desired, principally as it did not provide trainees with access to higher education. To our knowledge these courses have not made any contribution to training in the Textile and Clothing Sector;

c) Technical Vocational courses for training qualified staff at intermediate level, giving basic training equivalent to that of scientific/technological education.

This type of education lasts from the 10th to the 12th year (3 years). The course curriculum includes modules for general training, specific training, and technical vocational training. Technical vocational training may include practical work in an enterprise to give students a better idea of normal working conditions.

These courses have been more successful than vocational courses since they permit students to go on to higher education. However, the number of students in 1987/88 (3 200) from all technical vocational courses is clearly insufficient to satisfy the requirements of enterprises in Portugal for middle managers.

III.3.1 - Textile Secondary Education

The only courses with a textile component at present are those of a technical vocational nature. They are as follows:

III.3.2 - Textiles and Textile Production

This course occupies 35 hours per week, with 16 hours textile theory in the 10th year, 15 hours in the 11th and 22 hours in the 12th year. The subjects covered are:

- Textile Quality Control;
- Structure and Analysis of Fabrics;
- Textile Design;
- Textile Materials;
- Spinning Technology;
- Fabric Manufacture Technology (Fabrics and Knitted Fabrics);
- Dyeing, Printing and Finishing Technology.

The last three subjects are covered partly by theory and partly by practice.

The following secondary schools offer these courses:

- Campos de Melo, Covilhã;
- Infante D. Henrique, Oporto;
- Francisco de Holanda, Guimarães.

In spite of the fact that this course is the most suitable for satisfying enterprise requirements, only about 50 students attend and it is not anticipated that the number will increase in the near future.

III.3.3 - Textile Design

This technologically oriented course covers principally Textile Design with the object of replacing the specific subjects Physics and Chemistry by the History of Arts and Artistic Design. Consequently, it does not provide the opportunity of access to Higher Textile training, thus limiting continuity of studies to attendance at the Fine Arts College courses. This, together with the reduced textile technology component, explains the small number of students (about 10) and the lack of popularity with textile enterprises.

Subjects of a technological nature in the curriculum are as follows:

- Fabric Analysis and Structure;
- Spinning and Weaving Technology;
- Textile Design Theory;
- Material Technology and Behaviour

III.3.4 - Textile Chemistry

The Cooperativa de Ensino Didáxis, at Riba d'Ave in the Vale do Ave region, a college with Private and Cooperative status but not Higher Education offers this technology course.

The course involves 11 hours teaching in the 10th year.

17 hours in the 11th year and 19 hours in the 12th; the general and specific training components are equivalent to those of the Textile Technology and Production course; in the technical vocational training module more time is devoted to Textile Chemistry subjects than Textile Mechanics.

The following textile technology subjects are included in the curriculum:

- Textile Materials;
- Spinning Technology;
- Weaving Technology;
- Knitted Fabrics and Clothing Manufacture Technology;
- Weaving preparation;
- Textile Chemistry;
- Dyeing;
- Finishing and Printing;
- Quality Control.

This course, which was designed to satisfy the need of textile enterprises in the Vale do Ave to institute specialisation in chemical processes, has been well accepted in spite of only being started in 1984/85 as a teaching experiment.

III.4 - Authorised Centres

These Centres were created on a sectorial basis following agreements between the Institute of Employment and Vocational Training (IEFP), enterprise associations and trade unions. Capital expenditure and 95% of the operating expenses are born by the Institute of Employment and Vocational Training. The sector enterprises involved are responsible for the programmes and recruiting both trainers and trainees, with the result that the training activities offered are well received, especially as training is designed to satisfy the needs of the sectors concerned.

The Textile Industry Vocational Training Centre (CITEX) at Oporto, with branches at Lousada, Barcelos and Guimarães, and the Clothing Industry Vocational Centre (CFPIV), at Lisbon, were set up to satisfy the needs of the Textile and Clothing Industry.

III.4.1 - Textile Industry Vocational Training Centre (CITEX)

This Centre, which was created in 1981 as a result of an agreement between IEFP, the Associação Nacional das Indústrias Têxteis Algodoeira e Fibras (ANITAF), Associação Portuguesa das Indústrias de Malhas (APIM) and Associação Nacional das Indústrias do Vestuário e de

Confec;ões (ANIVEC), all of which have their offices in Oporto.

The Centre is concerned with vocational training and provides services to the industry. In order to achieve its objectives, it has premises equipped for teaching commercial sewing and textile design. It uses computerised equipment (CAD) for the training of modellers and stylists.

It uses the laboratories of enterprises and other institutions such as the Textile Institute and the University of Minho to satisfy the need for these laboratories in other textile areas.

Training takes place at the Centre's premises but, if the number of trainees justifies it, it may also provide training at external centres, especially enterprises interested in specific training activities for their technicians.

The courses provided are primarily for the qualification and upgrading of technicians in the Clothing Sector.

Training is principally in the following areas:

- Machine sewing of fabrics and knitted fabrics;
- Maintenance of sewing machines, sock-making machines and circular looms;
- Fashion designing;
- Modelling;
- Raw material Quality Control;
- Textile Dyeing.

In 1990 CITEX is planning to introduce two long courses (3 years) on Textile Design (with the subjects Textile Design for Printing, Weaving and Knitted Fabric Technology) and on Fashion Design (with Fashion Design, Modelling and Clothing Manufacture).

Most of these courses are financed by the E.S.F.

III.4.2 - Clothing Industry Vocational Training Centre (CFPV)

This Centre, which was created as the result of an agreement between IEFP and the Portuguese Clothing Industry Association and has objectives which are similar to those of CITEX, began work in 1984 and has its office in Lisbon.

Its objectives, which are similar to those of CITEX, are:

- to train qualified labour for the Clothing sector;
- to provide further training, upgrading training and re-training for technicians in clothing enterprises;
- to provide enterprises with aid in technology;
- to give an indication of standardization;
- to aid marketing by studying markets, collecting and processing information by constituting databases and publicizing fashion trends.

The courses offered are in the following fields:

- modelling;
- programming marking out and cutting;
- machine sewing;
- clothing manufacture techniques;
- maintenance techniques.

Trainees are trained as specialists in planning, the preparation and balancing of production lines, cutting preparers and head cutters, production technicians, time and motion specialists and sewing machine operators for the various lines so that they can at once be integrated into production sectors in the Clothing Manufacture sub-sector.

The Centre has branches at Covilhã, Castelo Branco and Santarém.

III.5 - Other Private Education Institutions

There are other institutions of a private nature which operate in the Textile and Design field, although they are not comparable in size with the two Authorised Centres.

These establishments are not however recognised by the Ministry of Education.

Among them are:

- The Institute of Audio-Visual Arts (I.A.D.E.), which among other courses offers a 3 year course in Art and Fashion designed to satisfy the requirements of a small number of enterprises; it can accommodate about two hundred students.

- The International Centre for Fashion Specialists (CITEM), which provides one year training courses on Styling and Modelling and other short courses (2 months) on the organisation of Clothing Manufacture processes.

IV - ANALYSIS OF QUESTIONNAIRES AND OTHER MATERIAL COLLECTED (FROM INTERVIEWS AND DISCUSSIONS)

As will be seen from Appendixes I.3.A and I.3.B, a survey of a descriptive nature was first sent to 400 enterprises representing sectors and areas. Replies were received from 20% of the questionnaires sent.

Most of the replies received came from technologically advanced enterprises. Another, but simpler, questionnaire was prepared after analysing replies to the first. Replies were received from 37% of the 1000 enterprises (which included those which did not reply to the first) to which the questionnaires were sent.

Analysis will be principally of opinions received from the most representative bodies and enterprises relating to technological progress and willingness to use new technology, only taking into account the aspects/suggestions considered most relevant and the specific nature of problems of small and medium enterprises and enterprises which are technologically backward.

IV.1 - Basic Level 3 training today

From an analysis of the results of the surveys it may be concluded that the principal features of training today in decreasing order of importance are as follows:

1. Basic education (4 years), complemented by several years practical experience in the industry.

2. Intermediate secondary education of a traditional nature (basic schooling plus 5 years at a traditional secondary school.

3. Secondary education of a vocational technical nature (basic education plus 5 years at a school with vocational/technical characteristics but not always with a curriculum based on textiles).

4. Upgrading activities organised by enterprises supplying equipment, (especially at manufacturers' training centres abroad).

5. Specific short training activities organised by the Authorised Centres and the Portuguese Textile Technicians and Engineers Association (APETT), Employers Associations and Textile Engineering Colleges.

It should also be noted that very little training is provided by the Textile Sector Trade Unions, although

these activities are now being extended considerably with aid from the ESF.

In addition, it now appears that some enterprises have Level 3 technicians who have attended medium length training courses within the ESF framework. This is particularly apparent in the Clothing Sub-sector (in modelling and styling). There is apparently increasing interest by enterprises in this sub-sector to organise training activities for their own technical senior staff.

IV.2 - Duties/Responsibilities undertaken at present by Level 3 technicians

Since most of the textile industry in Portugal is made up of small and medium enterprises (SMEs), Level 3 staff (foremen and overseers) very often have to perform the duties of senior staff, especially textile engineers, since enterprises cannot afford to employ staff of such categories and demand far outstrips supply. This is because Portugal has only recently had Textile Engineering Colleges. It is estimated that for staff with engineering training the ratio of demand to supply is currently five to one.

Consequently, in the Clothing and Textile Sectors the following duties are generally performed by foremen and overseers:

1. Coordination, direction and supervision of production sectors.

2. Organisation of production and management of the productive process.

3. Equipment maintenance.

4. Responsibility for ensuring quality of raw materials and finished products and the product project.

5. Personnel management.

6. The training of technicians working under them.

7. Operation of specific processes.

In compliance with current legislation, Level 3 employees constitute the "basic salaried" staff of an enterprise, with distinctions between foremen, overseers and team leaders. This is particularly the case in medium and large enterprises.

The duties of these technicians in such enterprises are

also diversified and involve various degrees of responsibility and decision-making. The following categories/duties may be found, depending on the organisation or "culture" of the enterprise:

a) Sections Managers and General Foremen associated with areas such as:

- Spinning
- Bobbin winding
- Weaving preparation
- Weaving and manufacture of knitted fabrics
- Finishing and dyeing
- Clothing manufacture
- Quality control

b) Shift leaders who assist section managers and general foremen in each of the above areas, especially in cases where enterprises operate in shifts and even in some areas where continuous working is employed.

c) Team leaders who are responsible for well-defined groups with jobs which are normally the same or similar, especially in the areas quoted above but also in the Maintenance and Energy sections.

At the different levels these personnel have the following responsibilities:

- In the field of management: supervision and discipline of staff for whom they are responsible, ensuring the correct distribution of tasks and social harmony.

- In the field of productivity: ensuring that standards are achieved and maintained.

- In the field of quality: ensuring that intermediate and final products are correctly manufactured through strict compliance with the manufacturing and process standards.

- In the case of the use and maintenance of equipment: ensuring that operating standards are carefully observed and servicing is carried out (cleaning of machines, lubrication, maintenance) or when necessary requesting services from a higher level in the enterprise (teams and specialists from the Maintenance and Energy section).

- In the case of hygiene, safety and health at work: ensuring that established standards are carefully observed.

Section Managers and General Foremen are also responsible for coordination between complementary and adjacent sectors and for activities to ensure continuity of work between shifts.

IV.3 - Training Areas desirable for Level 3

We consider that all aspects are important in view of the more demanding technical requirements and growing competitiveness in these sectors observed in recent years and anticipated in the near future as a result of the use of new technology, allied to the social/cultural changes affecting workers and requirements which, in terms of organisation, hygiene, safety and health at work, guarantee of equality and respect of rules of competition, are expected of an EEC Member State with establishment of the Single Market in 1992.

We therefore believe that:

1. General and basic vocational/technical education at a level between the 9th and the 12th year of schooling is essential.

2. Consideration must be given to the subsequent implementation of specialisation modules directed to the large areas of the Textile and Clothing Industry, directed particularly towards practical work.

3. Practical training, short courses, seminars for updating, informing, creating awareness and motivation - principally in character areas such as quality, human relationship, safety and hygiene at work and foreign languages - must be periodically promoted on a local basis.

4. Up to date technical training material should be produced, widely publicized and made accessible.

5. The provision of active prompt support to internal enterprise initiatives with the accent on permanent training and continuing training.

All replies indicated that basic training must include basic knowledge of:

- the use of computers for the management of quality and production processes;

- industrial handling (electromechanics, pneumatics and electronics);

- training in statistics with a view to the control of

quality and the production process;

- planning and organisation of production;

- time and motion.

Analysis of the replies received for the training requirements indicated that the areas most quoted were as follows:

1.	Handling	64%
2.	Quality control	62%
3.	Electronics	60%
4.	Production organisation and planning (time and motion)	58%
5.	The use of computers for the management of quality and processes	55%
6.	Foreign languages	53%
7.	Electromechanics/pneumatics	47%
8.	Hygiene and safety at work	38%
9.	Legislation/human relationships	34%

These subjects could be considered as a basis for all training at this level and for both sub-sectors (Textiles and Clothing). This basis should also include basic subjects such as Mathematics, Physics and Chemistry.

Training in these subjects could be organised by using modules with the essential complement of specific technology training for the sector concerned.

Specific training is particularly important for the Clothing sub-sector since many different processes are involved.

It also should be noted that as the size of enterprises increases, especially in the case of integrated enterprises and/or those in which more advanced technology is employed for production, the minimum level of training proposed is 12 years of schooling, and in some cases even higher education which requires a further three years.

IV.4 - Bodies responsible for training

A training system for the Textile/Clothing sector will require the coordinated action of several bodies and different levels of education from secondary and vocational/technical to higher, which would call for inter-Ministerial action.

Sector employers' organisations would participate by compiling, producing and distributing publications of a

technical and informative nature.

The work of Trade Unions in vocational training is limited to specific cases. It must be accepted that in future they will undertake much more work in this area, thus enabling them to play a more important role in this type of training. In addition, it is apparent that the enormous task of upgrading, a feature of the new technology era, has made many trade unions in Europe very conscious of active cooperation in the field of vocational/technical training, especially in relation to continuing training and upgrading.

The Public Sector, through the Ministry of Education, should be responsible for the initial training of technicians in the Textile and Clothing Sector. Training of this nature would come under the official education system as vocational/technical education.

In the case of upgrading, continuing training and training of a specialised nature, replies received to the questionnaires indicate that the opinion is that the following bodies/initiatives should be responsible:

1. Sector Employers Associations 37%

2. Vocational Training Centres, especially the Authorised Centres 23%

3. Textile and Clothing Industry Technology Centre 18%

4. Inter-Ministerial Initiatives resulting from collaboration between the Ministries of Education, Employment and Social Security, and Industry and Energy 11%

5. Sector Trade Unions 6%

6. Private Bodies specialising in Training 5%

IV.5 - Modification of the present Vocational/Technical Education System

In order to be effective the vocational technical education system, the first duty of which would be the basic and general training of Level 3 technicians for the I.T.V., would have to provide sound basic knowledge backed up by good basic training, taking into consideration the solution of sector problems, i.e. the concern over the day to day situation of enterprises, with special emphasis on productivity and quality aspects.

One solution could be to adapt the former Industrial Colleges system to current requirements, with particular attention to the basic sciences (mathematics, physics and chemistry) and to languages (Portuguese as the native language and English as the foreign language).

On the other hand, it is generally felt that better links between colleges and enterprises should be promoted so that the former may become more aware of the Textile and Clothing Industry. In order to achieve this technological training at vocational colleges could, and should, be supervised more directly by enterprises.

The following measures are proposed to ensure that this link materialises:

1. Sectorial associations should participate in the running of colleges, playing an active role in defining and adapting programmes to specific technological subjects.

2. Associations, through enterprises and their subsidiaries, could make some of their managerial staff available to colleges to provide guidance on subjects of a practical nature, including laboratory work, organise conferences and promote visits.

3. Enterprises could permit practical training on their premises for both students and college teaching staff.

To satisfy the need for training more appropriate to the requirements of industry, college training must include a large practical component.

In order to achieve this, colleges must be provided with up to date laboratories and equipment.

Enterprises can also play an important role in this field by providing colleges with equipment which no longer satisfies their own requirements but which is still valuable for teaching, as the principles of operation of various productive processes do not become out of date when new equipment is developed.

Access to higher education is another factor which could lead to a radical change in the number of students attending secondary education of a vocational nature.

Vocational/technical education is at present not truly oriented towards the pursuit of studies. To achieve this, the scientific aspects of vocational technical education should be extended so that students have the opportunity to enter higher education and are not frustrated because they are unable to. This policy would

lead to greater demand for training of a vocational nature.

IV.6 - Function of New Technology

The use of new technology will of course make a significant contribution towards improving the qualifications of Level 3 technicians. Its use will obviously depend on the willingness of these technicians to accept the change and their diligence. It is impossible to remain indifferent to their use when an enterprise introduces micro-computers and terminals which enable the different aspects of production processes variables to be displayed.

The following improvements (expressed as percentages and aggregates) are expected as a result of the use of new technology in the Clothing and Textile Sector:

1. More rapid and easier access to production data 74%

2. Improved management of raw materials, production equipment and manpower 68%

3. The control of quality and manufacturing processes in real time, permitting rapid response to variations in processes 55%

4. Provision of basic requirements for an increase in productivity and improvement in quality 48%

5. Considerable improvement in the quality of life in enterprises 22%

Use of the following potentials will enable these improvements to be obtained more quickly, provided that new information technology is introduced into education, particularly into the vocational/technical system:

1. A means of stimulating methods which will provide more incentive for the activity, participation, collaboration, initiative and creativity;

2. As a means of display, simulation and analysis;

3. As an aid to bringing up to date the different curriculum subjects in inter-disciplinary areas and to assist new college policies (bringing interests together within subject groups and linking colleges with social, economic and natural surroundings).

Since audio and video are now in general use, their potentials are now being exploited with great success for updating teaching methods and curricula, the creation of new, more effective apprenticeship, adaptation to the specific characteristics of trainees and subjects to be taught and stimulating thought in teaching today.

New information technology has an important part to play, especially in the field of vocational training, both at the level of vocational technical training and updating and continuing training.

In fact, for a vocational training system to be successful programme contents and teaching practice are not sufficient. It is the teaching aids which basically determine the results obtained.

Up to now aid has been provided primarily by the use of books and other written material, which in most cases however is limited and soon becomes out of date. As a result of the rapid development of technology a new policy is now required for the production of teaching manuals aimed at the basic principles of the processes and the functioning of textile machinery, which remain similar over a longer period of time.

This material should be complemented by audio-visual aids, especially slides and video films.

It is very important to produce a range of up to date video films as aids to training.

Two areas may be distinguished in the production of videos for this purpose:

1. Subjects of general information relating to the Clothing and Textile Industry;

2. More specific subjects so that most of the functions used in the textile sectors can be displayed, taking into account the different vocational profiles. This material will be produced with the object of:

- concentrating on the importance of machinery and the productive process;

- indicating the different individual operations and, especially, the importance of the work of operators.

These subjects must be developed using the advice and cooperation of college specialists at different levels, training and technology transfer centres, equipment manufacturers and vocational training specialists from the enterprises themselves.

IV.7 - The Importance of Community Programmes

As far as Community Programmes are concerned, especially those relating to aspects of technology transfer (SPRINT), new technology in the field of training (COMETT) and pre-competition research (BRITE/EURAM), most enterprises which took part in the survey have little or no information on these programmes but said that they are very interested in finding out the possibilities of its application to the Textile Sector.

Since the Community technology programmes are within the SPRINT programme, resources of the latter are designed to be used for the advisory organisations which favour trans-national partnerships between enterprises and laboratories, not for enterprises and laboratories which cooperate within the common project. This form of trans-national association relates not only to the transfer of technology (the sale or purchases of licences, joint ventures, etc) but also to the commercial field (mutual agreements for product distribution, by approval, etc). In other words the SPRINT programme is designed to help enterprises or factories to find partners in other enterprises in the Community.

The first stage of the SPRINT programme enabled testing to be carried out of different types of actions which could constitute the basis for a Community innovation and technology transfer policy down to the major research programmes such as ESPRIT or BRITE/EURAM.

Since SPRINT aims primarily to aid projects designed to modernise traditional industries (Textiles/Clothing, Footwear, Ceramics etc), it is to be expected that the level of the SPRINT II programme will be such that it will be possible to optimise national effort, both public and private, and to achieve the following objectives in the case of the Textile/Clothing Sector:

- improvement of the innovative capacity of the Textile industries;
- promotion of rapid penetration of new technology, especially in the textile regions and sectors in which it is at present little used;
- increase of the efficiency and coherence of existing regional, national and Community instruments and policies relating to innovation.

In order to achieve these objectives the Commission intends to define priority lines of action which in the case of aid for the Textile and Clothing Industry could assume the following forms:

- implementation of a structure for innovation consisting of networks providing suitable mobile services with numerous European trans-national relationships;

- promotion of new textile technology by demonstration. Demonstrations would be given in association with previous infrastructures in order to guide and illustrate mechanisms and methods and reinforce their effect. These operations would primarily combine actions for the creation of awareness, demonstration of possibilities of the technologies involved, training and technical aid for enterprises. They should be supported by Advanced Technology Centres and establish close links between the enterprises concerned, Research Centres "Top" Centres and universities, the local businesses and financial organisations;

- improvement of knowledge of the process of innovation. This line of action should also include programmes for analysing the processes of innovation, identifying obstacles or bottle-necks encountered, measuring the results obtained and evaluate the instruments implemented. Centres should be created to collect available information to be used to direct the previous activities thus permitting the programming of innovation policies;

At the same time there must be an increase in the exchange of experience and extension of the agreement between the different Member States institutions engaged in the innovation. Exchange of information, comparison of national and regional policies and the arrangement already initiated between the various institutions within the different Community programmes and in the different innovation and technology transfer policy areas will have to be continued and extended.

IV.8 - Importance of Level 3 in the modernisation and restructuring of the Textile/Clothing Sector

This will be tackled by giving some of the replies received to the questionnaires. Since they came from technologically advanced enterprises in the respective sectors, they are indicative of the urgent situation in the textile industries in Portugal.

"In the current situation the contribution of the level to modernisation and restructuring is still modest. Fortunately, it should be noted that expectations are sometimes exceeded to a surprising extent."

"Foremen and overseers in the Clothing/Textile Sector are respected because of the experience and knowledge which

they have accumulated over the years; they sometimes appear to possess a certain magic which is not only practical knowledge but is also profitable. However, the tendency today is to add to their individual experience by giving them sound technical knowledge. It is also observed that in some cases the word of a foreman is accepted before that of a senior technician".

"Progress depending on new technology requiring the decentralisation of knowledge involves a change in the status of foremen and overseers with a tendency for them to be gradually replaced. This will be accelerated with the modernisation and restructuring of the sectors involved. The equivalent skills will have to be between levels of vocational technical training which, in the case of SMEs, will be in the 11th/12th year of vocational technical education, while larger enterprises will rely on short pre-university or university training, i.e. equivalent to the vocational technical cycle to be followed by 2 to 3 year complementary training primarily of a technological nature with a small basic science content.

Although Level 3 employees are in a key position in the modernisation and restructuring of the Textile and Clothing Industry, the following major difficulties, expressed in percentages, were given in the answers to the questionnaire as major factors in this process:

1. Insufficient basic education	68%
2. Advanced age	57%
3. Lack of motivation	37%
4. Lack of information	29%

CONCLUSIONS AND PROPOSALS

As a result of analysis of the previous points and conclusions drawn from replies to the questionnaire, interviews and discussions, we believe that the following conclusions and proposals are relevant.

1. The duties of Level 3 employees in textile enterprises at production level at present are still as they were in the past; they include personnel management. In the case of P.M.E.s it appears that enterprise owners are often closer to the actual physical work. The age of Level 3 employees in enterprises is generally high, which is consistent with the findings.

2. As was apparent from the previous points, the level of qualifications is low, although the fact that this Level 3 was not truly representative must be taken into consideration. It follows therefore that qualifications were obtained from experience or courses provided by the suppliers, although in some cases they were the result of college training of a vocational nature.

Finally, an alternative is provided by the short courses run by public organisations with enterprise participation or by organisations with which enterprises have the most links, with aid from ESF for innovation courses. Some of these courses would probably have been put only because they were expected to be cheaper but without understanding the real requirement, which itself would be a stimulating factor.

Trade Unions are still somewhat bewildered by this problem.

3. Training is desired because of:

- an awareness of the need for an accurate idea of training requirements in view of the necessity to adapt the sector to future economic and market conditions;

- an awareness of existing obstacles - as has already been stated.

References to sector training, quality control, electronics, human relationships, planning and organisation, new technology, hygiene and safety and to languages are thus common.

On the other hand, more emphasis is given to permanent training, particularly upgrading and advanced training. The accent is on the role of distribution of information, internationally as well as nationally, while at the same time there is a growing interest in new methods of

training and training relating to marketing and the method of presenting products in a situation of increasing productivity and quality and management ability improvement.

4. Opinions relating to methods of vocational training include traditional methods and also revival of the role of vocational technical education directed at vocation. There is a definite need for organisations outside enterprises to play an increasing role.

- Associations
- Trade Unions
- Authorised or other Centres
- Joint public initiatives
- Private organisations

It should be noted that this desire associated with the cost of training is not incompatible with the role of enterprises in determining the training activities to be provided or the role of joint initiatives of enterprises, particulary PMEs, which must be associated for the purpose, consequently to hold discussions with the Government - which regards training as an investment - from a better standpoint.

5. The Technology Centres, or possibly the "Top" Centres, could fulfil the principal role of providers of training for Level 3 employees. They could also provide certain basic training, combining fulfilment of this need with the tasks associated with raising the qualifications of Level 3 employees, satisfying the requirements by publicizing the sector development objectives, modifying and updating, promoting and innovating quality and productivity in permanent association with enterprises in order to be integrated in a joint strategy.

Colleges or polytechnics can include all these aspects, providing the research and theory component for the whole process from their own resources and through the Technology Centres of which they must form an integral part.

The question of certifying quality is a joint task of prime importance.

6. In the case of E.S.F., due consideration of the process and desire for extension is important. However, in view of the new Community Aid Framework for 1990-1993/94 this practice will have to change.

The changes will therefore be:

- giving fresh impetus to vocational education,

vocational/technical education and vocational colleges of a local nature;

- promotion of an increase in basic training for this sector, giving it access to higher education in the continuing training system, particularly including apprenticeship;

- giving up excessively theoretical training;

- enabling the average level of qualifications to be increased;

- increasing the level of qualification of persons already qualified in new production and other techniques;

- providing upgrading, advanced training and retraining of SME workers to prepare them for new technology and safeguard the stability of the activity in the sector.

7. The position of public authorities may differ to a certain extent from that of agents and, as is apparent from the last point, they thus aim to incorporate collective plans which transcend individual wishes as a whole. In view of this future situation it would in this way be desirable for:

- Level 3 to fulfil its vital role in modernisation of the sector owing to its key position in the productive process and social relationship within and outside enterprises; it is these technicians who are also responsible for the circulation of information and improvement of productivity and quality.

- Their training to be in various specialised subjects based on increasingly sound and more practical basic training, in other words closely associated to problems to be resolved.

- Training methods to be based on an increasingly close interface between enterprises, the social partners and public authorities. The elements or content of a medium or long term policy for the sector must be based on this interface; such a policy will of necessity be of decisive important for Level 3 employees.

- Bodies to be created to integrate the agents, especially public, in order to promote the principal quality aspects in the sector, relating to:

  * equipment;
  * training;
  * research;

* innovation/technology demonstration;
* quality and certifying quality;
* market penetration.

New technology will have to permit increases in productivity to be associated with improvements of other aspects as or more important than those referred to above, associating production improvement with improvement in qualifications and retraining of existing workers wherever possible.

Increase in training should take into consideration improvement of its methods in the case of audio-visual resources, computer- and video-assisted teaching, etc. At the same time enterprises using training activities must look on them as effective investment costs, irrespective of the origin of funding.

8. In short, the fundamental requirement is achievement of the following:

- providing sufficient Level 3 workers for the different sub-sectors required to overcome the present restrictions and those which will arise if the anticipated - and desirable - development of the Textile Sector takes place;

- implementation of projects for relationships between enterprises and institutions which are sufficiently active to achieve them;

- encouragement of changes in the current training system to suit these objectives;

- creation of structures for the promotion of improvement in the quality, or modernisation, of the Textile Sector;

- bringing about changes in the tasks of Level 3 employees and, especially, how they are carried out.

9. In the case of vocational training, according to the survey of vocational training requirements in 1988, training activities provided by textile enterprises in 1987 were approximately in the following proportions according to enterprise size:

36.0% - in enterprises with 5 to 9 workers
11.3% - in enterprises with 10 to 49 workers
5.6% - in enterprises with 100 to 499 workers
7.1% - in enterprises with 500 and over workers.

This training was provided by 7.3% of the enterprises concerned.

The sources of finance used by the enterprise were as follows:

13.0% - from the enterprises themselves
75.4% - from E.S.F.
4.1% - from the Institute of Employment and Vocational Training
55.1% - from the Institute of Financial Management and Social Security
9.4% - from other sources.

This indicates the possibility of the influence of public organisations on training in SMEs.

Out of the workers with training requirements in 1989/90, textile and similar workers represented 4.2% of the national total, with the majority in apprenticeship - not very encouraging in a situation where requirements are defined spontaneously. However, requests for training of workers within the textile sector for 1989/90 were in the following proportions:

31.1% - initial training
8.8% - apprenticeship
51.2% - advanced training
8.9% - retraining

This is nearer the requirements of the sector concerned.

In addition, according to the same source in the same period 91% of the textile enterprises were aware of the need for training in view of the use of new technology for production, while 20.9% felt that use of new technology for commerce and administration called for training.

The averages for the enterprises in the processing industry were 97.2% and 28.4% respectively.

There is now a strong trend towards innovation, in other words the industry is gradually becoming aware of the relationship between new technology and vocational training.

There are two types of estimation in the very difficult area of assessing changes in training requirements as economic activities in the sector evolve in view of economic integration:

- the State's estimate of "textiles and training in Portugal" which shows increases up to 1992 of around 124% and 87% of middle managers, staff, foremen, overseers and team leaders, with and without restructuring respectively;

- the estimate of the Ministry of Education scenarios for the year 2005 which shows increases in this area of approximately 11% - 12% up to 1995 and 26% up to the year 2005, based on assumptions of increased production.

These figures are only given as an example to illustrate the diversity of projections.

However, in view of the radical modernisation necessary to overcome its relative obsolescence and because of competition in the future, the situation in the Textile sector is such that it may be assumed that the higher figures are more nearly correct.

It would be reasonable to assume that the number of Level 3 employees will have to increase by 50% to 100%, which on the basis of the present number (8 000) would mean that 4 000 to 8 000 employees would have to be given basic training through the education system as suggested earlier in this document.

The upgrading/advanced training of 4 000 employees will take place under the programme (for which IEFP is responsible) to train middle and senior managers and directors. This forms part of the Regional Development Plan submitted by Portugal to the Commission and destined to come into force between 1990 and 1993/94. It makes provisions for continuing training or short duration training of 4 to 6 weeks and longer training of 6 to 10 months in enterprises and in a training centre which would provide specific training.

Initial training may also be undertaken in this area since 2 to 3 years of complete technical training will be given after sound basic training (9th year of schooling).

It is desirable, and possible, for this training to be given under the compulsory education system, the University Training System, at Technology Centres, Authorised Centres, etc since all the bodies related to the procedure are involved.

It is also anticipated that the following priority training will be given for Level 3 employees in all sectors.

a) Electronics, Systems and Computers, Telecommunications, Office Systems;

b) Audio-visual, Electric and Electronic maintenance, Production Maintenance;

c) Quality and Laboratory Aids;

d) Accountancy, Management, Secretarial, Marketing, Publicity, Product Promotion, Import, Export, Sales;

e) Supply, Stock Management, Stores;

f) Product Design, Creative Design and Fashion Design.

It is anticipated that a total of about 150 000 employees will be involved up to 1992.

It will also be possible to include Level 3 textile workers in this overall area, even if there are appreciable variations from the estimates submitted.

APPENDIX I.3.A

Preparatory Questionnaire

UNIVERSITY OF MINHO
CEDEFOP PROJECT

Following the survey "Textiles and Training in Portugal" CEDEFOP (European Centre for the Development of Vocational Training), a Community organisation whose office is in Berlin, asked the University of Minho to carry out a survey "Vocational Profiles and Training Requirements of Foremen and Overseers in the Textile/Clothing Sector in Portugal", the object of which is to improve technical and financial aid to the sector in respect of Training and Economic and Technological Development.

We are therefore sending you a preliminary questionnaire to ascertain the points of view of enterprises in the Textile and Clothing Sector on this problem.

QUESTIONNAIRE

10. Numbers of foremen and overseers working in the enterprise.

11. Duties performed.

12. Training they have had (basic education, vocational secondary training, other types of training). Specify.

13. Attendance at courses or other training activities and/or vocational upgrading in relation to their activities.

14. Bodies promoting the above activities (employers, trade unions, public or private organisations). Specify.

20. What training as far as enterprises concerned should employees at this level (foremen and overseers) have?

Examples: training in electricity, electronics, industrial maintenance, the use of computers in production management, quality control and statistics, production planning and organisation, human relationships, employment legislation, hygiene and safety at work, languages, others (specify).

21. Which bodies/organisations should be concerned with this training?

a) Official secondary education, through vocational/technical education;
b) Employers through their own courses;
c) Sectorial employers' associations
d) Vocational Associations, especially trade unions;

e) The Vocational Training Centres of the Institute of Employment and Vocational Training and the Authorised Centres;
f) Inter-Ministerial initiatives (Ministries of Education, Industry, Employment and Social Security, Trade);
g) Private organisations;
h) Others. Specify

22. What role should the Textile and Clothing Industries' Technology Centre, which is to be created, play in respect of this enterprise?

23. How important is the role played by training activities aided by the European Social Fund (ESF) in this field? How could these activities be improved?

24. What qualifications are lacking in the different sectors? What qualifications are lacking in this enterprise?

25. How will the industries in the Clothing and Textile Sector in Portugal be able to take part in EEC programmes such as SPRINT, COMETT and BRITE?

31. What trends are to be expected from the employment of personnel at this level of qualification (foremen and overseers) in the anticipated and desired modernisation and restructuring of the Textile/Clothing Sector?

32. What type of problems might we be confronted with in the foreseeable future if there is no improvement in the policy for training personnel at this level, particularly with regard to international competition?

33. What role can new technology, especially the use of computers and information technology, play in the improvement of qualifications of technicians at this level?

34. What suggestions would you make to modify vocational training policies in order to prevent employees at this level of qualification (foremen and overseers) from continuing to hinder modernisation of the sector.

41. What requirements does this enterprise expect to have for technicians at this level of qualification in the short term (i.e. at present) and over a medium term (2 to 3 years)?

42. We would like you to suggest a list of areas of training required for this enterprise in view of our integration into the Community and competition with non-Community textile countries.

NOTES

1. The University of Minho is responsible for this work and the completed survey will be sent to CEDEFOP. No Portuguese government organisations are involved.

2. We would like replies to this questionnaire to reflect as far as possible the deficiencies and concerns of the National Clothing and Textile Industry in this field in the hope that the results will contribute towards their elimination.

3. Would you kindly send the replies to us by 20th July at:

Universidade do Minho
Projecto CEDEFOP
4800 Guimarães

4. The survey will be sent with a TEXTILE DATABASE prepared by us with the (written) information received. We would like to send a copy of the information we have collected on this enterprise and will ensure that it will be confidential. If you agree, we would like this information to be corrected and additional up to date information on the enterprise sent to us.

APPENDIX I.3.B

Final Questionnaire

UNIVERSITY OF MINHO
CEDEFOP Project

Enterprise:

Address:

Post code:

Tel: Telex:

Principal Activity

QUESTIONNAIRE

10. STAFF
No. of foremen .... No. of overseers ....

11. DUTIES PERFORMED (specify)

13. EDUCATION/TRAINING
Basic Education ..... Vocational Secondary ...
Other (specify) .....

14. BODIES PROMOTING TRAINING
Employers ..... Trade Unions .....
Public Organisations ... Private Organisations...
Others (specify) .....

20. IN WHAT SUBJECTS SHOULD TRAINING BE GIVEN?
Electricity ..... Electronics .....
Maintenance ..... Quality Control .....
Statistics ..... Hygiene & Safety at Work....
Human Relationships ..... Employment Legislation ....
Production Organisation & Planning .....
Production Management by Computer .....
Languages .....
Others (specify) .....

21. WHAT BODIES/ORGANISATIONS SHOULD PROVIDE TRAINING?
Vocational/Technical Education ..... Employers .....
Sector Employers' Associations .....
Vocational Associations .....
Vocational Training Centres .....
Authorised Centres ..... Trade Unions .....
Inter-Ministerial Initiatives .....
Private Organisations .....
Others (specify) .....

22. WHAT ROLE MUST THE CLOTHING AND TEXTILE INDUSTRIES TECHNOLOGY CENTRE PLAY IN THIS FIELD?

23. EUROPEAN SOCIAL FUND (Experience of the enterprise in this field; possibilities of these activities)

Suggestions for future actions

24. ENTERPRISE REQUIREMENTS (Foremen and overseers)
Short-term ..... Medium Term (2-3 years) .....
Specify

25. PART PLAYED BY FOREMEN AND OVERSEERS IN THE MODERNISATION AND RESTRUCTURING OF THE TEXTILE SECTOR

26. LIST OF TRAINING AREAS WITH A VIEW TO IMPROVED INTEGRATION INTO COMMUNITY COUNTRIES AND INCREASED COMPETITIVENESS WITH NON-COMMUNITY COUNTRIES WHERE WAGES ARE LOW.

27. WHAT CHANGES DO YOU CONSIDER ARE NEEDED TO VOCATIONAL/TECHNICAL EDUCATION AT PRESENT AND TO THE VOCATIONAL TRAINING SYSTEM IN ORDER TO RESPOND TO ENTERPRISES' REQUIREMENTS?

28. ROLE TO BE PLAYED BY NEW TECHNOLOGY (USE OF COMPUTERS AND INFORMATION TECHNOLOGY) IN MODERNISING THE PORTUGUESE TEXTILE INDUSTRY

29. POTENTIALS OF THE COMMUNITY PROGRAMMES *SPRINT, COMETT* AND *BRITE* WHEN APPLIED TO THE PORTUGUESE TEXTILE INDUSTRY

APPENDIX I.3.C

Enterprises, Institutions and Social Partners contacted

Official Organisations

Employment and Vocational Training Institute, Lisbon.
Dr. Mário Caldeira Dias.

Employment and Vocational Training Institute, Guimarães Employment Centre.
Dr. Carvalho Monteiro.

C.I.T.E.V.E. Steering Committee, Oporto.
Eng. António Sarmento

Social Partners

Associação Nacional dos Industriais Têxteis Algodoeiros e Fibras, Oporto.
Eng. Alberto José Costa.

Associação Nacional dos Industriais de Tecelagem e Têxteis Lar, Guimarães.
Eng. José M. Pereira Costa.

Associação Nacional dos Industriais de Vestuário e Confecções, Oporto.
Dr. Lemos Costa.

Associação Portuguesa dos Industriais de Malhas, Oporto.
Dr. Mesquita Morais.

Associação Nacional dos Industriais de Lanifícios, Covilhã.

Sindicato Democrático dos Têxteis, Oporto.
António Carranca.

Federação dos Sindicatos dos Têxteis, Oporto.
Dr. Antero Leitão.

Enterprises Contacted

Coelima, Pevidém.
Eng. Jaime Coelho Lima, Personnel Manager

Indústrias Têxteis Somelos, Ronfe.
Eng. Rui Folhadela, Industrial Relations Manager.

Mako Jeans, Trofa.
Dr. A. R. Maciel, Manager.

Gefa Confecções, Moita.
Vasco Machado Monteiro.
Lusaustri, Guimarães.

Julio Oliveira, Manager.

Fiatece, Vila das Aves.
José Guimarães, Manager.

Textéis Lopes Correia, Pevidém.
Eng. Sopas.

Empresa Industrial de Santo Tirso, Santo Tirso.
Eng. Alberto Resende, Director.

Cotesi, Carvalhos.
Rui Pinto, Personnel Department Manager.

Unitape, Esmoriz.
José Rodrigues, Director.

Companhia de Torres Novas.
Julio Vieira, Managing Director.

Foncar, Rio Tinto.
Manuel Coutinho, Manager.

Fab Tapeçarias Alves Pereira, S. Paio de Oleiros.
Joaquim Alves Pereira, Proprietor.

Fábrica dos Casais, Riba de Ave.
António Oliveira, Manager.

Empresa Fabril Tirsense, Santo Tirso.
Pedro Correia da Silva, Manager.

A Fiandeira, Braga.
Maria Dolores Patricio, Personnel Department.

Fiaçao Boavista, Vermoim.
José da Silva Simões, Manager.

Fábrica de Tapetes Vitória, Mira de Aires.
João Batista, Manager.

Fiação de Covas.
Filipe Machado, Manager.

Fábrica de Lanificios de Portalegre, Portalegre.
J. Fernandes, Director.

Lameirinho, Pevidém.
Eng. Carlos M. Pontes Bento, Production Manager.

Cofta, Alcobaça.
M. Cruz Pinto, Director.

Galitos, Bordados Artísticos, Guimarães.

Isabel Sousa, Manager.

Sociedade Têxtil do Mogo, Maia.
A. Pinto de Sousa, Manager.

Matex, Guimarães.
Joaquim Ferreira, Manager.

Confecções Tininha, Ponte de Lima.
Maria Luisa Barros, Manager.

Gondomarinho, Gondomar.
M. Ramos Teles, Manager.

Anibal Guimarães, Rio Tinto.
António Carlos Dessa, Manager.

Fiação e Tecidos de Barcelos.
Carlos Costa, Manager.

Soc. Têxtil a Flor do Rio, Riba de Ave.
J.L. Cruz, Manager.

Magalhães & Gonçalves, Guimarães.
Maria Silva, Manager.

Nuno Marinho & Cia, Maia.
Maria Laurinda, Manager.

Sidicol, Guimarães.
Alfredo Milheiro, Manager.

Tecialgo, Oporto.
Dr. Jorge Moutinho, Director.

Passamanarias Monte Meão, Cucujães.
Dr. Clemente Pinto, Manager.

Mota & Fernandes, Vila Verde.
Manuel Lopes da Costa, Manager.

APPENDIX II.2.A

Distribution of employees according to qualifications (%)

APPENDIX II-1-A

DISTRIBUTION OF EMPLOYEES ACCORDING TO QUALIFICATION (%)

Mainland Portugal
All Ages
Men & Women

Activity Codes	Mang Dir	Qualification Senior Mgrs	Middle Mgrs	Frman* Ovsrs	Highly Skild	Skild Pers	Semi-Skild	Non-Skild	Probs & Apps	Not Known	Total
0.00	-	15.4	7.7	9.6	9.6	23.1	1.9	1.9	1.9	28.8	100.0
0.00	-	15.4	7.7	9.6	9.6	23.1	1.9	1.9	1.9	28.8	100.0
0.	-	15.4	7.7	9.6	9.6	23.1	1.9	1.9	1.9	28.8	100.0
1.11	-	0.3	0.1	3.3	0.2	17.5	14.5	54.2	0.8	9.2	100.0
1.12	-	1.7	0.2	2.3	0.6	20.1	25.9	13.6	1.6	34.0	100.0
1.1	-	0.4	0.1	3.2	0.2	17.7	15.1	51.9	0.9	10.6	100.0
1.21	-	0.4	0.0	2.1	0.2	6.2	22.2	63.4	0.6	4.9	100.0
1.22	-	1.4	0.1	1.9	1.1	31.4	17.7	36.1	1.3	9.0	100.0
1.2	-	0.8	0.0	2.0	0.6	16.2	20.4	52.5	0.9	6.5	100.0
1.30	-	2.7	3.3	10.9	2.5	46.3	5.5	1.7	2.8	24.8	100.0
1.3	-	2.7	3.3	10.9	2.5	46.3	5.5	1.7	2.8	24.8	100.0
1.	-	0.8	0.6	4.3	0.6	21.9	13.9	43.3	1.2	12.5	100.0
2.10	-	0.6	1.7	3.8	1.6	47.1	37.7	2.3	1.9	3.4	100.0
2.1	-	0.6	1.7	3.8	1.6	47.1	37.7	2.3	1.9	3.4	100.0
2.20	-	4.8	0.0	0.0	4.8	0.0	4.8	9.5	4.8	71.4	100.0
2.2	-	4.8	0.0	0.0	4.8	0.0	4.8	9.5	4.8	71.4	100.0
2.30	-	2.0	4.2	4.4	4.4	47.4	24.5	4.5	3.1	5.6	100.0
2.3	-	2.0	4.2	4.4	4.4	47.4	24.5	4.5	3.1	5.6	100.0
2.90	-	0.8	1.0	4.6	1.0	38.5	29.9	10.6	6.3	7.3	100.0
2.9	-	0.8	1.0	4.6	1.1	38.5	29.9	10.6	6.3	7.3	100.0
2.	-	1.0	1.7	4.5	1.7	40.8	29.5	8.8	5.4	6.7	100.0
3.11	-	1.2	0.8	4.3	1.2	29.0	38.6	6.4	10.2	8.3	100.0

* and Section leaders

DISTRIBUTION OF EMPLOYEES ACCORDING TO QUALIFICATION (%)

Mainland Portugal
All Ages
Men & Women

Activity Codes	Mang Dir	Qualification Senior Mgrs	Middle Mgrs	Frman* Ovsrs	Highly Skild	Skild Pers	Semi-Skild	Non-Skild	Probs & Apps	Not Known	Total
3.12	-	2.1	1.2	4.4	3.9	34.6	28.1	8.1	1.2	16.4	100.0
3.13	-	1.5	1.4	4.2	1.5	17.3	23.0	13.1	1.0	37.0	100.0
3.14	-	4.2	6.1	11.0	8.8	24.7	26.0	9.0	8.9	1.3	100.0
3.1	-	1.4	1.0	4.5	1.6	27.8	35.5	7.4	8.3	12.5	100.0
3.21	-	0.6	0.9	3.3	1.0	33.3	40.3	7.8	10.7	2.1	100.0
3.22	-	0.1	0.5	2.8	0.2	49.1	13.6	1.9	28.9	2.8	100.0
3.23	-	0.8	0.8	2.7	0.6	16.4	37.1	10.8	15.3	15.6	100.0
3.24	-	0.4	0.2	1.2	0.7	29.2	29.1	1.0	36.6	1.6	100.0
3.2	-	0.4	0.6	2.8	0.7	37.2	30.3	5.1	20.3	2.6	100.0
3.31	-	0.6	0.5	2.9	0.7	33.2	18.0	27.8	13.1	3.3	100.0
3.32	-	0.4	0.3	1.8	3.3	51.8	8.0	8.9	22.8	2.7	100.0
3.3	-	0.5	0.5	2.5	1.6	39.7	14.5	21.1	16.5	3.1	100.0
3.41	-	3.0	0.8	5.2	7.7	33.6	28.7	7.8	6.4	6.7	100.0
3.42	-	1.6	1.2	2.8	26.7	22.5	10.8	6.7	22.7	4.9	100.0
3.4	-	2.2	1.0	3.8	18.9	27.1	18.2	7.2	16.0	5.7	100.0
3.51	-	5.2	2.5	7.8	9.8	35.9	6.3	2.4	1.1	29.1	100.0
3.52	-	3.5	3.8	4.0	10.0	26.9	13.0	3.3	3.4	32.2	100.0
3.53	-	6.8	12.8	17.7	21.2	30.5	4.8	3.2	0.1	3.0	100.0
3.54	-	4.6	5.3	3.4	9.0	30.5	7.6	3.1	1.2	35.3	100.0
3.55	-	1.7	2.7	4.5	14.2	16.3	4.7	1.9	6.0	48.0	100.0
3.56	-	1.0	0.8	2.3	2.6	13.8	3.6	1.6	5.9	68.4	100.0
3.5	-	3.4	3.2	5.5	9.4	25.6	7.6	2.5	3.4	39.5	100.0
3.61	-	0.9	0.5	4.7	1.1	27.0	31.2	9.8	20.6	4.2	100.0
3.62	-	1.9	0.7	5.7	2.7	42.7	22.6	7.6	10.2	5.9	100.0
3.69	-	1.5	0.6	4.1	1.8	33.1	24.1	22.4	7.7	4.7	100.0
3.6	-	1.4	0.6	4.6	1.8	32.9	26.0	16.0	12.0	4.7	100.0
3.71	-	3.1	1.4	4.1	5.9	51.1	20.9	5.7	4.7	3.1	100.0

* and Section leaders

DISTRIBUTION OF EMPLOYEES ACCORDING TO QUALIFICATION (%)

Mainland Portugal
All Ages
Men & Women

Activity Codes	Mang Dir	Qualification Senior Mgrs	Middle Mgrs	Frman* Ovsrs	Highly Skllđ	Skllđ Pers	Semi- Skllđ	Non- Skllđ	Probs & Apps	Not Known	Total
3.72	-	1.4	0.3	4.0	3.5	46.0	20.5	9.6	10.4	4.4	100.0
3.7	-	2.7	1.1	4.1	5.4	49.9	20.8	6.5	6.0	3.4	100.0
3.81	-	0.9	0.2	3.2	3.0	49.9	16.3	7.5	15.1	3.9	100.0
3.82	-	1.1	0.5	3.8	4.7	55.2	12.6	6.6	12.0	3.5	100.0
3.83	-	3.6	2.5	6.7	4.7	27.9	38.0	3.4	5.5	7.8	100.0
3.84	-	2.0	0.7	6.0	6.8	47.5	17.4	4.7	9.7	5.0	100.0
3.85	-	1.3	0.8	3.7	4.0	33.0	31.2	4.6	10.8	10.8	100.0
3.8	-	1.7	0.8	4.6	4.6	45.8	20.3	5.8	11.4	5.0	100.0
3.90	-	0.5	0.5	2.9	5.9	23.4	27.8	5.4	15.2	18.3	100.0
3.9	-	0.5	0.5	2.9	5.9	23.4	27.8	5.4	15.2	18.3	100.0
3.	-	1.2	0.9	3.7	3.5	36.7	24.5	7.6	14.4	7.4	100.0
4.10	-	8.7	1.2	4.6	7.0	29.0	39.8	8.1	0.0	1.7	100.0
4.1	-	8.7	1.2	4.6	7.0	29.0	39.8	8.1	0.0	1.7	100.0
4.20	-	1.0	7.0	9.3	4.7	49.7	24.0	0.2	0.0	4.1	100.0
4.2	-	1.0	7.0	9.3	4.7	49.7	24.0	0.2	0.0	4.1	100.0
4.	-	8.2	1.5	4.9	6.8	30.3	38.8	7.6	0.0	1.9	100.0
5.00	-	1.5	0.4	5.7	1.1	46.6	3.6	27.9	11.2	2.1	100.0
5.0	-	1.5	0.4	5.7	1.1	46.6	3.6	27.9	11.2	2.1	100.0
5.	-	1.5	0.4	5.7	1.1	46.6	3.6	27.9	11.2	2.1	100.0
6.10	-	4.3	2.3	5.0	5.7	43.9	12.7	12.0	6.2	7.7	100.0
6.1	-	4.3	2.3	5.0	5.7	43.9	12.7	12.0	6.2	7.7	100.0
6.20	-	1.6	1.0	3.6	4.2	49.1	11.6	8.6	15.5	4.8	100.0
6.2	-	1.6	1.0	3.6	4.2	49.1	11.6	8.6	15.5	4.8	100.0
6.31	-	0.3	0.5	1.9	0.4	30.2	30.6	6.1	27.1	2.8	100.0
6.32	-.7	1.7	2.7	3.8	2.1	31.5	33.1	15.1	7.0	2.3	100.0
6.3	-.2	0.8	1.2	2.6	1.0	30.6	31.4	9.0	20.5	2.6	100.0
6.	-.1	2.5	1.6	3.9	4.1	43.0	16.4	10.0	12.9	5.5	100.0
7.11	-	1.9	2.2	5.9	4.9	53.6	15.5	10.7	3.4	1.8	100.0
7.12	-	3.9	3.0	14.6	4.8	44.4	8.3	6.0	1.6	13.3	100.0

* and Section leaders

APPENDIX II-1-A

DISTRIBUTION OF EMPLOYEES ACCORDING TO QUALIFICATION (%)

Mainland Portugal
All Ages
Men & Women

Activity Codes	Mang Dir	Qualification Senior Mgrs	Middle Mgrs	Frman* Ovsrs	Highly Skild	Skild Pers	Semi-Skild	Non-Skild	Probs & Apps	Not Known	Total
7.13	-	5.9	6.5	0.3	18.6	19.5	2.2	3.6	0.5	42.9	100.0
7.19	-	5.1	4.7	4.0	1.3	45.8	15.3	8.8	7.4	7.8	100.0
7.1	-	3.0	3.1	5.4	6.1	47.8	13.4	9.3	3.5	8.4	100.0
7.20	-	5.9	3.5	5.6	3.0	38.5	34.3	7.6	0.0	1.6	100.0
7.2	-	5.9	3.5	5.6	3.0	38.5	34.3	7.6	0.0	1.6	100.0
7.	-	3.9	3.2	5.4	5.2	44.9	20.0	8.7	2.4	6.2	100.0
8.10	-	4.9	6.7	3.9	5.2	61.3	1.0	7.5	0.0	9.3	100.0
8.1	-	4.9	6.7	3.9	5.2	61.3	1.0	7.5	0.0	9.3	100.0
8.20	-	5.8	21.1	0.3	7.1	45.5	13.1	1.4	3.8	2.0	100.0
8.2	-	5.8	21.1	0.3	7.1	45.5	13.1	1.4	3.8	2.0	100.0
8.31	-	4.8	1.4	2.8	4.1	28.7	6.0	20.3	5.2	26.7	100.0
8.32	-	3.8	2.1	1.9	4.1	33.7	24.2	6.2	4.8	19.3	100.0
8.33	-	5.1	14.8	11.1	13.1	27.3	1.8	3.8	2.5	20.4	100.0
8.3	-	3.9	2.5	2.3	4.4	32.9	21.4	7.7	4.7	20.1	100.0
8.	-	4.7	7.5	2.8	5.2	49.5	9.6	6.6	2.2	11.8	100.0
9.11	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
9.13	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
9.15	-	0.0	7.7	0.0	0.0	0.0	0.0	7.7	23.1	61.5	100.0
9.1	-	0.0	4.2	0.0	0.0	0.0	0.0	4.2	12.5	79.2	100.0
9.20	-	0.3	0.0	0.3	0.1	2.4	7.6	87.7	0.3	1.3	100.0
9.2	-	0.3	0.0	0.3	0.1	2.4	7.6	87.7	0.3	1.3	100.0
9.31	-	0.7	3.8	0.8	14.3	11.1	12.8	9.9	1.8	44.7	100.0
9.32	-	0.3	0.3	0.5	4.2	12.5	2.1	2.3	0.3	77.5	100.0
9.33	-	4.8	0.9	0.7	8.9	13.1	41.1	11.6	1.7	17.2	100.0
9.34	-	1.7	1.4	1.7	7.4	11.1	18.3	13.0	2.7	42.7	100.0
9.35	-	4.1	2.1	2.4	4.9	22.9	3.1	7.7	1.2	51.5	100.0
9.39	-	1.8	0.6	2.2	3.6	14.6	3.2	4.7	0.7	68.6	100.0
9.3	-	2.3	2.1	1.3	9.5	13.1	19.0	10.7	1.9	40.0	100.0

* and Section leaders

DISTRIBUTION OF EMPLOYEES ACCORDING TO QUALIFICATION (%)

Mainland Portugal
All Ages
Men & Women

Activity Codes	Mang Dir	Senior Mgrs	Middle Mgrs	Qualification Frman* Ovsrs	Highly Skllđ	Skllđ Pers	Semi- Skllđ	Non- Skllđ	Probs & Apps	Not Known	Total
9.41	-	4.3	6.5	3.0	13.5	15.8	12.4	15.4	1.3	27.8	100.0
9.42	-	0.5	0.2	0.9	0.4	5.4	3.8	2.3	0.6	85.9	100.0
9.49	-	1.2	1.9	6.0	2.1	26.6	15.6	14.1	1.9	30.5	100.0
9.4	-	2.7	4.0	4.1	7.5	19.5	13.0	13.7	1.5	34.0	100.0
9.51	-	0.9	0.7	1.8	2.0	59.4	6.7	3.8	22.5	2.3	100.0
9.52	-	0.6	0.1	2.2	0.2	15.4	61.2	9.9	1.3	9.1	100.0
9.53	-	0.0	0.0	0.0	0.0	22.6	0.0	9.4	0.0	67.9	100.0
9.59	-	0.5	0.2	0.8	0.7	26.2	11.6	2.6	50.1	7.3	100.0
9.5	-	0.8	0.5	1.6	1.6	50.5	10.0	3.8	27.4	3.7	100.0
9.60	-	5.9	0.0	5.9	11.8	35.3	11.8	11.8	5.9	11.8	100.0
9.6	-	5.9	0.0	5.9	11.8	35.3	11.8	11.8	5.9	11.8	100.0
9.	-	1.7	1.7	1.6	6.0	24.4	14.4	16.1	9.6	24.5	100.0
Total	0.0	2.0	1.6	3.9	3.8	38.7	19.4	11.1	11.3	8.2	100.0

* and Section leaders

APPENDIX II.2.A.

Number of employees per activity according to enterprise size

APPENDIX II-2-A

NUMBER OF EMPLOYEES PER ACTIVITY ACCORDING TO ENTERPRISE SIZE

Mainland Portugal
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE 0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21100	0	0	0	0	0	0	0	14	0	19	0	33
3.21110	0	1	2	1	0	0	0	6	0	0	0	9
3.21120	2	2	0	11	32	67	175	145	83	185	117	815
3.21130	0	0	1	9	26	72	269	303	172	745	968	2565
3.21141	0	0	0	0	0	0	0	0	18	0	0	18
3.21142	0	0	0	0	0	0	0	6	0	0	0	6
3.21150	2	3	2	5	23	6	18	5	0	0	0	61
3.21160	0	0	0	0	3	1	0	8	0	0	0	12
3.21190	0	0	0	4	7	18	26	11	0	70	0	136
3.21210	1	1	0	0	0	8	6	0	0	0	0	15
3.21220	0	0	2	11	17	12	20	7	0	0	0	69
3.21230	0	0	2	6	4	19	13	0	0	0	0	44
3.21240	0	0	0	0	0	0	0	0	0	0	24	24
3.21290	0	0	1	2	11	2	1	29	0	0	0	46
3.21300	4	6	11	33	94	132	225	308	29	204	0	1040
3.21410	1	1	3	1	10	7	32	16	0	22	17	109
3.21510	0	0	0	0	0	2	0	35	0	86	45	168
3.21520	0	0	0	0	5	5	5	0	0	0	0	15
3.21590	0	0	0	0	0	0	0	0	12	0	0	12
3.21910	0	0	0	2	0	0	39	0	0	0	0	41
3.21920	0	0	0	0	0	0	2	0	0	0	0	2
3.21990	2	3	2	3	21	11	19	8	17	0	0	83
3.22010	42	47	15	25	13	1	6	20	0	0	0	122
3.22020	9	11	44	121	448	431	414	651	73	203	122	2516
3.22030	0	0	0	0	1	1	0	0	15	0	0	17
3.22040	1	1	4	3	0	1	7	13	0	0	0	29
3.22090	0	0	0	0	11	9	0	12	0	0	0	32
Total	64	76	89	237	726	805	1275	1597	419	1534	1293	8039

APPENDIX II.2.B.

Number of employees per activity, district sub-sector and enterprise size

APPENDIX 11-2-B

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Aveiro
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE 0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21120	0	0	0	0	1	0	13	14	0	19	0	47
3.21150	0	1	1	6	1	6	4	0	0	0	0	13
3.21190	0	0	0	0	0	0	9	0	0	0	0	9
3.21290	0	0	0	0	2	0	0	0	0	0	0	2
3.21300	0	0	0	2	2	1	0	41	0	0	0	46
3.21410	0	0	0	0	2	1	3	8	0	22	0	36
3.21510	0	0	0	0	0	0	0	15	0	28	0	43
3.21520	0	0	0	0	0	3	0	0	0	0	0	3
3.21590	0	0	0	0	0	0	0	0	12	0	0	12
3.21920	0	0	0	0	0	0	2	0	0	0	0	2
3.21990	0	0	0	0	1	0	4	0	0	0	0	5
3.22010	3	3	1	1	1	0	0	0	0	0	0	6
3.22020	0	0	0	6	23	16	8	19	0	0	0	72
3.22030	0	0	0	0	1	0	0	0	15	0	0	16
3.22040	0	0	0	2	0	0	0	0	0	0	0	2
Total	3	3	2	12	39	22	43	97	27	69	0	314

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Braga
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE 0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 E+	Total
3.21100	0	0	0	0	0	0	0	0	0	19	0	19
3.21110	0	1	1	1	0	0	0	0	0	0	0	2
3.21120	1	1	0	1	2	1	0	1	0	0	0	6
3.21130	0	0	0	3	14	40	109	157	123	292	679	1417
3.21142	0	0	0	0	0	0	0	6	0	0	0	6
3.21150	0	0	0	0	3	2	1	0	0	0	0	6
3.21190	0	0	0	2	3	1	9	0	0	37	0	52
3.21210	0	0	0	0	0	8	0	0	0	0	0	8
3.21220	0	0	2	6	11	10	14	4	0	0	0	47
3.21230	0	0	2	3	4	12	8	0	0	0	0	29
3.21290	0	0	0	1	2	0	1	29	0	0	0	33
3.21300	1	2	4	17	43	58	106	156	0	81	0	466
3.21410	0	0	0	0	1	0	0	0	0	0	0	1
3.21990	1	1	1	1	0	4	4	8	0	0	0	19
3.22010	8	10	5	0	2	0	0	0	0	0	0	15
3.22020	1	1	16	38	118	90	72	73	0	31	27	466
3.22030	0	0	0	0	0	1	0	0	0	0	0	1
3.22090	0	0	0	0	2	1	0	3	0	0	0	6
Total	12	16	31	73	205	228	324	437	123	460	706	2599

APPENDIX II-2-B

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Castelo Branco
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 E+	Total
3.22010	1	1	0	0	0	0	0	0	0	0	0	1
Total	1	1	0	0	0	0	0	0	0	0	0	1

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Castelo Branco
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21110	0	0	1	0	0	0	0	0	0	0	0	1
3.21220	1	1	0	4	23	19	57	73	26	57	0	260
3.21190	0	0	0	2	0	0	0	0	0	0	0	2
3.21220	0	0	0	1	0	0	0	0	0	0	0	1
3.21300	0	0	1	0	0	0	0	0	0	0	0	1
3.21990	0	1	1	0	0	0	0	0	0	0	0	1
3.22010	2	3	1	0	0	0	0	0	0	0	0	3
3.22020	0	0	0	3	16	16	20	83	0	0	0	138
3.22090	0	0	0	0	0	0	0	9	0	0	0	9
Total	3	5	4	10	39	35	77	165	26	57	0	416

APPENDIX II-2-B

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Coimbra
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21120	0	0	0	0	0	0	0	0	0	31	0	31
3.21130	0	0	0	0	0	0	0	1	0	16	5	22
3.21210	1	1	0	0	0	0	0	0	0	0	0	1
3.21300	0	0	0	0	5	2	9	13	0	42	0	71
3.21410	0	0	0	0	2	0	0	6	0	0	0	8
3.22010	4	4	0	0	0	0	0	0	0	0	0	4
3.22020	0	0	1	0	4	5	9	51	32	0	0	102
Total	5	5	1	0	11	7	18	71	32	89	5	239

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Evora
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21410	0	0	0	0	1	0	0	0	0	0	0	1
3.22020	0	0	0	0	0	5	0	0	0	0	7	12
Total	0	0	0	0	1	5	0	0	0	0	7	13

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Faro
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE 0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21300	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	0	0	1	0	0	0	0	0	0	0	1

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Guarda
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21110	0	0	0	0	0	0	0	6	0	0	0	6
3.21120	0	0	0	0	1	25	18	17	21	19	117	218
3.21130	0	0	0	0	1	0	0	0	0	0	0	1
3.21300	0	0	0	0	0	3	11	0	0	0	0	14
3.21410	0	0	3	0	3	0	7	0	0	0	0	13
3.22020	0	0	0	0	1	0	0	10	0	0	0	11
Total	0	0	3	0	6	28	36	33	21	19	117	263

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Leiria
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21120	0	0	0	3	4	8	11	36	0	0	0	62
3.21130	0	0	0	0	0	0	0	5	0	0	0	5
3.21220	0	0	0	0	0	1	0	0	0	0	0	1
3.21300	0	0	0	1	1	5	2	0	0	0	0	9
3.21410	0	0	0	0	0	0	10	0	0	0	17	27
3.21520	0	0	0	0	5	0	0	0	0	0	0	5
3.22020	0	0	0	0	4	6	0	7	0	0	0	17
Total	0	0	0	4	14	20	23	48	0	0	17	126

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Lisbon
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21120	0	0	0	0	0	9	43	4	36	0	0	92
3.21130	0	0	0	0	0	1	11	0	0	1	12	25
3.21150	0	0	0	0	2	0	0	0	0	0	0	2
3.21290	0	0	0	1	3	1	0	0	0	0	0	5
3.21300	1	1	1	1	13	3	2	24	0	0	0	45
3.21410	0	0	0	0	0	1	0	0	0	0	0	1
3.21510	0	0	0	0	0	1	0	0	0	0	0	1
3.21910	0	0	0	2	0	0	0	0	0	0	0	2
3.21990	0	0	0	0	18	0	3	0	0	0	0	21
3.22010	9	10	3	18	6	0	6	0	0	0	0	42
3.22020	1	2	8	16	84	78	52	84	8	20	28	379
3.22040	1	1	2	0	0	1	3	13	0	0	0	20
3.22090	0	0	0	0	4	0	0	0	0	0	0	4
Total	12	14	14	38	130	95	120	125	44	21	40	639

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Portalegre
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21120	0	0	0	0	0	0	0	0	0	59	0	59
3.22020	0	0	0	0	4	5	0	0	0	0	0	9
Total	0	0	0	0	4	5	0	0	0	59	0	68

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Oporto
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE 0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21100	0	0	0	0	0	0	0	14	0	0	0	14
3.21120	0	0	0	3	1	2	16	0	0	0	0	22
3.21130	0	0	1	6	11	26	147	135	49	412	272	1059
3.21141	0	0	0	0	0	0	0	0	18	0	0	18
3.21150	2	3	1	4	12	3	13	5	0	0	0	40
3.21160	0	0	0	0	3	1	0	8	0	0	0	12
3.21190	0	0	0	0	4	17	8	11	0	33	0	73
3.21210	0	0	0	0	0	0	6	0	0	0	0	6
3.21220	0	0	0	4	5	1	6	3	0	0	0	19
3.21230	0	0	0	0	0	3	5	0	0	0	0	8
3.21240	0	0	0	0	0	0	0	0	0	0	24	24
3.21290	0	0	1	0	3	1	0	0	0	0	0	5
3.21300	2	3	4	9	21	47	85	74	29	79	0	350
3.21410	1	1	0	0	1	5	1	2	0	0	0	10
3.21510	0	0	0	0	0	1	0	20	0	58	45	124
3.21520	0	0	0	0	0	2	5	0	0	0	0	7
3.21910	0	0	0	0	0	0	39	0	0	0	0	39
3.21990	0	0	0	2	1	7	8	0	17	0	0	35
3.22010	10	10	4	6	3	1	0	20	0	0	0	44
3.22020	6	7	19	49	151	165	224	260	24	134	54	1086
3.22040	0	0	1	1	0	0	3	0	0	0	0	5
3.22090	0	0	0	0	5	8	0	0	0	0	0	13
Total	21	24	31	84	221	290	566	552	137	716	395	3013

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Santarem
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE 0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21120	0	0	0	0	0	3	8	0	0	0	0	11
3.21130	0	0	0	0	0	0	0	0	0	24	0	24
3.21230	0	0	0	3	0	4	0	0	0	0	0	7
3.21290	0	0	0	0	1	0	0	0	0	0	0	1
3.21300	0	0	1	2	2	9	7	0	0	0	0	21
3.21410	0	0	0	1	0	0	11	0	0	0	0	12
3.21990	0	0	0	0	1	0	0	0	0	0	0	1
3.22020	0	0	0	2	2	9	11	0	0	0	0	24
3.22040	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	2	8	6	25	37	0	0	24	0	102

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Setubal
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21130	0	0	0	0	0	5	0	0	0	0	0	5
3.21220	0	0	0	0	1	0	0	0	0	0	0	1
3.21300	0	0	0	0	7	0	3	0	0	0	0	10
3.22010	0	1	1	0	0	0	0	0	0	0	0	1
3.22020	1	1	0	2	30	16	16	39	9	18	6	137
3.22040	0	0	0	0	0	0	1	0	0	0	0	1
Total	1	2	1	2	38	21	20	39	9	18	6	155

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Viana Do Castelo
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21130	0	0	0	0	0	0	2	5	0	0	0	7
3.21300	0	0	0	0	0	0	0	0	0	2	0	2
3.22010	1	1	0	0	0	0	0	0	0	0	0	1
3.22020	0	0	0	2	7	18	0	19	0	0	0	46
Total	1	1	0	2	7	18	2	24	0	2	0	56

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Vila Real
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE 0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21990	1	1	0	0	0	0	0	0	0	0	0	1
3.22010	2	2	0	0	0	0	0	0	0	0	0	2
3.22020	0	0	0	0	1	0	0	0	0	0	0	1
Total	3	3	0	0	1	0	0	0	0	0	0	4

NUMBER OF EMPLOYEES PER ACTIVITY, DISTRICT, SUB-SECTOR AND ENTERPRISE SIZE

Viseu
All Ages
Men & Women

Activity Codes	ENTERPRISE SIZE											
	0-4	0-5	5-9	10-19	20-49	50-99	100-199	200-399	400-499	500-999	1000 +	Total
3.21120	0	0	0	0	0	0	7	0	0	0	0	7
3.21300	0	0	0	0	0	4	0	0	0	0	0	4
3.22010	2	2	0	0	1	0	0	0	0	0	0	3
3.22020	0	0	0	3	3	2	2	6	0	0	0	16
Total	2	2	0	3	4	6	9	6	0	0	0	30

APPENDIX II.3.A.

Number of employees according to enterprise age and activity

APPENDIX II-3-A

NUMBER OF EMPLOYEES ACCORDING TO ENTERPRISE AGE AND ACTIVITY

Mainland Portugal
Men & Women

Activity Codes	Enterprise Age 0-1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-19 yrs	20+ yrs	Not knwn	Total
3.21100	-	1	1	2	11	17	1	33
3.21110	1	7	-	-	-	1	-	9
3.21120	20	58	92	110	175	347	13	815
3.21130	48	198	321	391	530	1041	36	2565
3.21141	-	1	-	-	2	15	-	18
3.21142	-	-	3	-	3	-	-	6
3.21150	2	4	10	5	9	28	3	61
3.21160	-	-	1	8	3	-	-	12
3.21190	4	12	21	17	20	60	2	136
3.21210	-	1	6	3	1	4	-	15
3.21220	12	14	25	6	7	2	3	69
3.21230	5	3	15	7	2	5	7	44
3.21240	-	1	1	6	14	2	-	24
3.21290	6	11	18	8	-	2	1	46
3.21300	84	216	214	135	155	207	29	1040
3.21410	6	12	9	15	18	47	2	109
3.21510	1	3	9	9	49	97	-	168
3.21520	1	8	2	-	1	3	-	15
3.21590	-	1	-	1	3	7	-	12
3.21910	3	1	4	7	23	3	-	41
3.21920	-	-	-	-	-	2	-	2
3.21990	20	13	14	15	6	15	-	83
3.22010	12	18	26	21	17	20	8	122
3.22020	327	624	554	412	330	208	61	2516
3.22030	-	1	1	2	2	11	-	17
3.22040	-	4	2	6	10	7	-	29
3.22090	4	7	12	4	2	3	-	32
Total	556	1219	1361	1190	1393	2154	166	8039

APPENDIX II.4.A.

Number of employees per activity according to sales

APPENDIX II.4.A

NUMBER OF EMPLOYEES PER ACTIVITY ACCORDING TO SALES

Mainland Portugal
-Men & Women

Activity Code	SALES (10^6 Escudos) 0-10	10-29	30-49	50-99	100-199	200-499	500-999	1000-4999
3.21100	0	0	0	0	0	0	14	19
3.21110	1	1	0	0	0	0	6	0
3.21120	10	10	7	29	111	128	161	319
3.21130	52	11	19	13	63	240	323	1189
3.21141	0	0	0	0	0	0	18	0
3.21142	0	0	0	0	0	0	6	0
3.21150	3	10	6	10	2	30	0	0
3.21160	0	0	0	0	4	0	8	0
3.21190	2	0	1	9	15	6	64	34
3.21210	1	0	0	0	6	0	0	0
3.21220	6	16	3	5	4	21	4	8
3.21230	1	2	7	12	2	9	4	0
3.21240	0	0	0	0	0	0	0	24
3.21290	1	5	4	4	11	1	19	0
3.21300	14	48	16	69	70	258	296	213
3.21410	1	1	9	2	6	19	29	22
3.21510	10	0	0	0	0	1	25	132
3.21520	0	0	0	5	0	8	2	0
3.21590	0	0	0	0	0	0	0	12
3.21910	0	1	1	0	0	0	19	20
3.21920	0	0	0	0	0	2	0	0
3.21990	21	0	1	3	10	10	20	17
3.22010	53	19	4	19	1	25	1	0
3.22020	117	232	179	288	306	434	387	274
3.22030	0	0	1	15	0	0	0	0
3.22040	3	2	2	1	0	7	13	0
3.22090	3	3	0	11	2	13	0	0
Total	299	361	260	495	613	1212	1419	2283

NUMBER OF EMPLOYEES PER ACTIVITY ACCORDING TO SALES

Mainland Portugal
Men & Women

Activity Code	SALES (10^6 Escudos) 5 000-9 999	10 000-24 999	25 000-49 000	50 000-99 999	100 000 +	Not knwn	Total
3.21100	0	0	0	0	0	0	33
3.21110	0	0	0	0	0	1	9
3.21120	0	0	0	0	0	40	815
3.21130	61	246	0	0	0	348	2565
3.21141	0	0	0	0	0	0	18
3.21142	0	0	0	0	0	0	6
3.21150	0	0	0	0	0	0	61
3.21160	0	0	0	0	0	0	12
3.21190	0	0	0	0	0	5	136
3.21210	0	0	0	0	0	8	15
3.21220	0	0	0	0	0	2	69
3.21230	0	0	0	0	0	7	44
3.21240	0	0	0	0	0	0	24
3.21290	0	0	0	0	0	1	46
3.21300	0	0	0	0	6	50	1040
3.21410	0	0	0	17	0	3	109
3.21510	0	0	0	0	0	0	168
3.21520	0	0	0	0	0	0	15
3.21590	0	0	0	0	0	0	12
3.21910	0	0	0	0	0	0	41
3.21920	0	0	0	0	0	0	2
3.21990	0	0	0	0	0	1	83
3.22010	0	0	0	0	0	0	122
3.22020	124	5	0	0	0	170	2516
3.22030	0	0	0	0	0	1	17
3.22040	0	0	0	0	0	1	29
3.22090	0	0	0	0	0	0	32
Total	185	251	0	17	6	638	8039

APPENDIX II.5.A.

Number of employees according to earnings

NUMBER OF EMPLOYEES ACCORDING TO EARNINGS

Mainland Portugal
Enterprise size
Men & Women

Activity Code	Earnings: Under 6 000	6 000 to 7 999	8 000 to 9 999	10 000 to 11 999	12 000 to 13 999	14 000 to 15 999	16 000 to 17 999	18 000 to 19 999	20 000 to 21 999	22 000 to 22 399	22 400 to 23 999	22 000 to 23 999	24 000 to 25 199	25 200 to 25 999	24 000 to 25 999
3.21100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21120	0	0	0	0	0	0	0	0	1	0	0	0	2	0	2
3.21130	0	0	0	0	0	1	0	0	0	0	1	1	1	1	2
3.21141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21150	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
3.21160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21190	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1
3.21210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21220	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
3.21230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21290	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0
3.21300	0	0	0	1	1	0	0	0	2	0	2	2	3	4	7
3.21410	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
3.21510	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21590	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21910	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21920	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.21990	0	0	0	0	0	0	0	0	0	0	1	1	1	2	3
3.22010	0	0	0	0	2	1	1	1	4	0	0	0	4	17	21
3.22020	0	0	0	1	0	2	4	0	3	0	3	3	9	17	26
3.22030	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
3.22040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.22090	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
Total	0	0	0	2	3	4	6	3	10	1	11	12	21	44	65

NUMBER OF EMPLOYEES ACCORDING TO EARNINGS

Mainland Portugal
Enterprise Size
Men & Women

Activity Code	Earnings 26 000 to 27 999	28 000 to 29 999	30 000 to 31 999	32 000 to 33 999	34 000 to 35 999	36 000 to 37 999	38 000 to 39 999	40 000 to 44 999	45 000 to 49 999	50 000 to 54 399	55 000 to 59 999	60 000 to 64 999	65 000 +	Total
3.21100	0	0	0	1	3	0	0	11	4	2	3	3	3	30
3.21110	0	0	0	0	1	0	0	3	1	0	2	0	0	7
3.21120	1	4	7	2	82	19	35	163	128	97	60	59	100	760
3.21130	4	4	33	100	99	71	90	317	282	244	173	167	716	2304
3.21141	0	0	0	0	0	1	2	0	4	2	4	0	1	14
3.21142	0	0	0	0	0	0	0	0	1	1	1	0	3	6
3.21150	0	1	0	1	3	1	2	12	9	8	2	1	11	53
3.21160	0	0	0	0	0	1	0	0	3	0	0	2	5	11
3.21190	0	1	4	3	4	2	4	17	16	29	11	12	12	117
3.21210	0	0	0	0	0	2	2	7	1	0	0	0	2	14
3.21220	3	3	2	2	6	3	3	9	10	7	4	3	7	63
3.21230	1	0	2	1	3	7	1	6	6	5	0	3	4	39
3.21240	0	0	4	2	0	1	0	3	3	0	3	3	1	20
3.21290	0	0	1	1	6	2	4	7	3	7	0	3	6	43
3.21300	5	13	23	75	58	54	60	172	87	120	64	65	140	949
3.21410	0	1	1	0	6	1	2	18	12	8	11	9	28	98
3.21510	0	0	1	1	7	8	17	35	27	22	14	8	12	152
3.21520	0	0	0	0	0	1	2	6	2	2	0	0	0	13
3.21590	0	0	0	0	0	1	0	1	5	3	1	1	0	12
3.21910	0	0	0	0	0	0	1	4	6	8	2	3	14	38
3.21920	0	0	0	0	0	0	0	0	0	0	0	2	0	2
3.21990	10	1	3	0	4	2	4	7	7	5	7	4	19	77
3.22010	3	3	1	3	3	15	4	19	10	5	3	0	2	101
3.22020	20	29	76	86	119	313	164	440	277	230	115	113	272	2293
3.22030	0	0	0	0	0	0	0	6	3	2	1	0	2	15
3.22040	0	0	1	1	2	3	2	4	2	6	3	1	1	26
3.22090	0	0	0	6	1	3	1	7	2	1	3	1	3	30
Total	47	60	159	285	407	511	400	1274	911	814	487	463	1364	7287

APPENDIX II.6.A.

Number of employees per activity according to education

APPENDIX II.6.A

NUMBER OF EMPLOYEES PER ACTIVITY ACCORDING TO EDUCATION

Mainland Portugal
Total
Men & Women

Activity Code	EDUCATION							
	Illit.	Litt.	Basic Primary	Basic Prepara	General Secondary	Supplem. Secondary	Tech & Comm.	Advanced Tech.
3.21100	0	5	13	1	1	0	0	0
3.21110	0	0	6	0	1	1	0	1
3.21120	17	75	513	91	36	12	16	29
3.21130	21	203	1623	270	109	55	52	122
3.21141	0	0	12	5	0	0	0	0
3.21142	0	0	4	1	1	0	0	0
3.21150	0	3	37	5	4	4	3	2
3.21160	0	0	4	0	0	0	0	0
3.21190	0	9	89	21	7	2	1	4
3.21210	0	0	11	3	1	0	0	0
3.21220	0	2	47	9	4	2	1	1
3.21230	0	2	19	13	2	1	0	0
3.21240	0	1	17	1	1	1	0	1
3.21290	0	0	30	8	2	2	2	0
3.21300	3	29	668	151	77	25	21	22
3.21410	0	2	52	15	7	3	3	6
3.21510	4	27	120	4	0	4	1	7
3.21520	0	0	8	4	0	1	0	1
3.21590	1	0	9	2	0	0	0	0
3.21910	0	4	21	1	4	2	6	3
3.21920	0	0	2	0	0	0	0	0
3.21990	1	7	47	13	4	3	3	1
3.22010	1	6	100	5	7	0	1	0
3.22020	4	56	1753	353	123	63	31	19
3.22030	1	2	9	3	1	0	1	0
3.22040	0	1	21	3	1	0	1	0
3.22090	0	0	17	7	1	4	0	0
Total	53	434	5252	989	394	185	143	219

NUMBER OF EMPLOYEES PER ACTIVITY ACCORDING TO EDUCATION

Mainland Portugal
Total
Men & Women

Activity Code	EDUCATION							
	Agric	Other Second	Interm Educ	Baccal	Licent	Others	Unknown	Total
3.21100	0	0	0	0	0	0	13	33
3.21110	0	0	0	0	0	0	0	9
3.21120	0	1	0	3	6	2	14	815
3.21130	2	11	12	19	31	10	25	2565
3.21141	0	0	0	0	0	0	1	18
3.21142	0	0	0	0	0	0	0	6
3.21150	0	0	0	0	0	2	1	61
3.21160	0	0	0	0	0	0	8	12
3.21190	0	0	0	0	2	0	1	136
3.21210	0	0	0	0	0	0	0	15
3.21220	0	0	1	0	0	1	1	69
3.21230	0	0	0	0	0	0	7	44
3.21240	0	0	0	0	2	0	0	24
3.21290	0	0	0	0	1	0	1	46
3.21300	0	9	7	6	7	5	10	1040
3.21410	0	0	0	2	7	1	11	109
3.21510	0	0	0	0	0	0	1	168
3.21520	0	0	0	0	1	0	0	15
3.21590	0	0	0	0	0	0	0	12
3.21910	0	0	0	0	0	0	0	41
3.21920	0	0	0	0	0	0	0	2
3.21990	0	3	0	1	0	0	0	83
3.22010	0	0	0	0	1	0	1	122
3.22020	2	8	5	4	9	4	82	2516
3.22030	0	0	0	0	0	0	0	17
3.22040	0	1	0	0	0	0	1	29
3.22090	0	1	0	0	0	0	2	32
Total	4	34	25	35	67	25	180	8039

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Professor Dr Licinio Chainho Pereira,
vice-reitor da Universidade do Minho
Professor Dr António Alberto Cabeço Silva
Dr Mario Caldeira Dias

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European Centre for the Development of Vocational Training,
Jean Monnet House, Bundesallee 22, **D-W-1000 Berlin 15**
Tel.: (030) 88 41 20; Telefax: (030) 88 41 22 22; Telex: 184 163 eucen d

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