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Competence Development in SMEs: Practices and Methods for Learning and Capacity Building

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COMPETENCE DEVELOPMENT IN SMEs: PRACTICES AND METHODS FOR LEARNING AND CAPACITY BUILDING. EUROPEAN REPORT

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EXECUTIVE SUMMARY

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i. This research report, namely Competence Development in SMEs: Practices and Methods for Learning and Capacity Building (CODE), has been conducted within the framework of the Leonardo da Vinci Community Vocational Training Action Programme (Reference material). This research project tries to gain new insight on the position of European manufacturing SMEs towards knowledge and learning as a competitive factor and on the relevance of the different methods they make use of in order to develop and increase their current knowledge capital. The research also analyses what are the attitudes, benefits and barriers that manufacturing SMEs identify for engaging themselves in competence development strategies, as well as relevant public policy support programmes in this domain.

ii. From a methodological perspective, the research has been conducted by a partnership of five European research Institutes belonging to Spain (**Ikei**), France (**Citia**), Austria (**Austrian Institute for SME Research**), The Netherlands (**EIM Business & Policy Research**) and Finland (**Turku School of Economics and Business Administration**). **Instituto Vasco de Estudios e Investigación** (**Ikei**) was responsible of the general co-ordination of the research. The research is primarily based on a survey conducted amongst a sample of 765 effectively surveyed manufacturing SMEs (according to a predefined distribution by sector, size and country). The results obtained from the survey have been complemented with a review of literature, several interviews with a number of key informers and an analysis of relevant public policy support programmes in this domain and examples of enterprises where competence development plays effectively a central role.

iii. Competence is defined in this research as the combination of human knowledge, skills and aptitudes serving productive purposes in SMEs and contributing (or expected to contribute) to their competitiveness. Meanwhile, competence development represents the measures an enterprise takes to develop its human knowledge and skills, and thereby its competitive capacity.

iv. European manufacturing SMEs attribute a very high importance (7.7 on a scale from 0 -not important at all- to 10 -very important-) to those activities intended to upgrade the enterprise's knowledge and skill base as a key element for sustaining the enterprise's competitiveness, irrespectively of size, sector or

country considerations. This importance can be partially explained by the fact that four out of ten manufacturing SMEs admit to suffer from a shortage of skilled labour ('skills shortage'), whereas the need to upgrade SMEs' workforce's skills and competence base ('skills gap') is suggested by half of them.

v. One out of two European manufacturing SMEs have a special person or group responsible within the enterprise for identifying current or future skill needs. This person or group are mainly either the enterprise's own management team or the owner/general manager. The importance of the owner/general manager seems to be particularly relevant amongst the smaller enterprises. By way of contrast, the importance of the management team or the human resources manager/training director is higher the larger the enterprises are.

vi. Manufacturing SMEs attribute a high importance to non-formal competence development methods for upgrading their in-house competence base and skills. Small enterprises are more in favour of informal practices than medium sized ones. The most valued practices for developing in-house competencies by manufacturing SMEs include on-the-job learning/learning in the daily work, visits to expositions/trade fairs and job/task rotation within the enterprise of the personnel. Other relatively well valued competence development practices include reading of information available in trade and sector magazines/publications, reading of information available in Internet and, finally, coaching/guidance activities for staff by other people in the enterprise. The competence development activities mostly valued by small enterprises are normally integrated in daily work. Larger enterprises are able to profit from a larger scope of relevant methods, as well as those SMEs engaged in exporting activities and those in good economic situation.

vii. The external actors most relevant as sources of knowledge and competencies for the manufacturing SMEs are the enterprise's clients and suppliers, irrespectively of size, sector or country considerations. Other well-valued actors according to the Leonardo CODE survey results include competitors/business colleagues, consultants/accountants and, finally, the own recruitment of new external personnel with required new competencies. Other actors (which can be labelled as more 'formal' and 'academic') are not regarded as that relevant for manufacturing SMEs, such as business/trade associations and universities/training, and especially R&D centres/technical experts and government/public agencies.

viii. Small manufacturing enterprises are characterised by a strong division of labour between staff on the 'blue-collar' level (manual workers/operators) and 'white-collars' (directors/managers, middle managers/technicians) in the contents and nature of their learning processes. Thus, 'white collars' are more oriented towards external source of competence whereas 'blue-collar' employees are more oriented towards internal sources.

ix. The areas where manufacturing SMEs manifest a higher need for upgrading their knowledge/skill base are, in this order, 'sales/marketing' and 'engineering/manufacturing'). Other areas also particularly valued include 'language abilities' and 'personal skills' (i.e. communication, team-work, pro-activity, etc). By way of contrast, the areas regarded as less important by manufacturing SMEs include 'office work' and 'management/finance'. Large SMEs are interested on a wider scope of issues, whereas smaller enterprises seem to primarily concentrate on topics that are 'close to their business'.

x. The two most important barriers that manufacturing SMEs identify for engaging themselves in activities intended to develop the knowledge, skills and competencies of their personnel are organisational[1] and financial[2] ones, irrespectively of size, sector or country considerations. Other relatively important barriers include the problem of lack of motivation from the employees, the lack of enough public support for these activities (in terms of guidance, subsidies, fiscal exemptions, etc) and the risk that trained employees might be 'poached away' by competitors.

xi. The presence of different tools for making the existing in-house knowledge 'explicit' is very different amongst the different tools, where this presence is also directly related to size considerations. Electric/electronics, metal/machinery and chemical/plastics SMEs ahve the highest presence of these tools, as well as Dutch and Finnish manufacturing SMEs (especially in comparison to the Spanish SMEs). Involvement in exporting activities seems also to have also a positive effect in the presence of formal tools, as well the economic situation of the enterprise.

xii. Manufacturing SMEs positively rate (6.6 on a scale from 0-not disseminated- to 10-very well disseminated-) their degree of dissemination of relevant

[1] The fact that employees' workload makes these activities difficult to organise.

[2] The fact that available budgets for competence development activities are insufficient or the associated costs are too high for them.

knowledge and information through the organisation. The largest share of manufacturing SMEs tend to prefer 'informal' (informal meetings, daily interaction) over 'formal' (intranets, manuals, internal newsletters) mechanisms for disseminating relevant knowledge and information within the organisation. Small, old, non-exporting and well performing SMEs seem to be more in favour of informal mechanisms.

xiii. Around half of the population of manufacturing SMEs have got databases where relevant-to-the-enterprise knowledge, experiences and documents are stored for subsequent use. In up to 94.2% of SMEs with databases these databases are periodically updated, whereas 68.7% of those manufacturing SMEs with databases point out that these databases are accessible through ICT-based system. Only 23.4% of the manufacturing SMEs with databases say that these databases are accessible to all the enterprise's workforce, where the largest percentage (64.1%) suggest that these databases are accessible only to allowed personnel (including the management board).

1. GENERAL INTRODUCTION TO THE REPORT

1. GENERAL INTRODUCTION TO THE REPORT

As the Communication from the European Commission 'Making a European area of lifelong learning a reality'[3] underlines, "It is essential to promote more actively the development of learning at the workplace and for enterprises and other organisations to become learning organisations (...). Gaining insight into the learning needs of SMEs, where learning typically takes place in a non-formal or informal context, is particularly important". Additionally, as the Communication also stresses, there must be a shift from knowledge acquisition to competence development, in the sense that the learning organisations have to implement new measures in order to develop and profit their knowledge and skills and subsequently their competitive capacity.

This project, namely **Competence Development in SMEs: Practices and Methods for Learning and Capacity Building (CODE),** tries to gain new insight on the position of European manufacturing SMEs towards knowledge and learning as a competitive factor and on the relevance of the different methods they make use of in order to develop and increase their current knowledge capital. In addition to this, the research analyses what are the attitudes, benefits and barriers that manufacturing SMEs identify for engaging themselves in competence development strategies. Finally, the project intends to identify good practices and examples of enterprises where competence development plays effectively a central role.

The research has been conducted within the framework of the **Leonardo da Vinci Community Vocational Training Action Programme** (Reference material).

In this sense, this report is structured in 10 main chapters, including this general introduction. Thus, chapter 2 focuses on the methodology employed for conducting this research project, including the different steps followed and the different roles assumed by the different partners within the research project. Meanwhile, chapter 3 tries to provide a theoretical framework for both defining the term 'competence development' and for analysing the importance of this concept for sustaining the enterprises' competitiveness.

[3] Commission of the European Communities, Making a European area of lifelong learning a reality, COM (2001) 678 final, Brussels, 2001

Chapter 4 in interested in identifying the competence planning activities that European manufacturing SMEs[4] carry out, that is to say, the activities that SMEs conduct in order to define current and/or future competence needs in relation to the enterprise's generic business goals and strategies. Meanwhile, chapter 5 will be interested in analysing the different practices (both using internal and well as external elements) that manufacturing SMEs take in order to develop the competence status available within its in-house human resources, as well as the main external sources of competencies for SMEs, the staff categories mostly benefited from these competence development activities and the main competence areas identified by them.

Interestingly also, chapter 6 will focus its attention on the main barriers that render difficult for manufacturing SMEs their involvement in these competence development activities. Additionally, chapter 7 will deal with the issue of competence utilisation, i.e., the way the organisations make use of the new or extended knowledge acquired in their competence development activities. In this sense, this chapter will provide information both on the degree of formalisation of the available in-house knowledge as well as the extent to what this in-house knowledge is diffused within the organisation.

Finally, chapter 8 will try to present a number of examples of relevant policy measures intended to foster competence development activities within SMEs, whereas chapter 9 will try to extract a number of main conclusions from the results of the whole research, as well as a number of policy recommendations to be derived from the research.

[4] SMEs in this report will comprise those enterprises between 10 and 249 employees. Therefore, microenterprises (between 1 and 9 employees) are not specifically analised in this research.

2. METHODOLOGICAL CONSIDERATIONS ON THE REPORT

2. METHODOLOGICAL CONSIDERATIONS ON THE REPORT

This research has been based on a methodology combining existing knowledge (literature review on the subject), quantitative new data (survey on companies) and qualitative information and evidence of good practices at enterprise level.

A partnership of five European research Institutes belonging to Spain, France, Austria, The Netherlands and Finland has carried out this research, where each partner has been responsible of collecting the information for his respective country. It is worth stressing that this national composition of the partnership has allowed a balanced presence of countries from the diverse European areas (Southern, Central and Nordic countries) and their associated economic, entrepreneurial and training characteristics, what represents an important added value for the research results. These five partners, who have an extensive experience in joint European projects, are the following ones:

- **Instituto Vasco de Estudios e Investigación** (**Ikei**) (Basque Institute of Studies and Research), Spain
- **EIM Business & Policy Research**, The Netherlands
- **KMU FORSCHUNG AUSTRIA (Austrian Institute for SME Research),** Austria
- **Turku School of Economics and Business Administration**, Business Research and Development Centre, Small Business Institute (**SBI**), Finland
- **Citia**, France

In essence, and as mentioned before, the methodology for carrying out this research has been based on a methodology combining existing knowledge (literature review on the subject), quantitative new data (survey on companies) and qualitative information (work sessions/interviews) and evidence of good practices at enterprise level:

I. National literature review on Competence Development in SMEs

Ikei and partners have carried out an exhaustive review of existing national literature on the issue of competence development, where special attention has been paid to enterprise size considerations. For this purpose, partners have identified those studies and reports produced since 1990 on the issue,

where this literature (either empirically-based or opinion-based one), has included books, articles in specialised magazines or official/unofficial reports. Special attention has been paid to information preferably from the micro-economic perspective. Questions to be answered by this literature review have included definitions used in the national literature on Competence Development, degree and extent of involvement of SMEs in competence development activities, identification of competence needs and planning, rationale and barriers for SMEs to engage themselves in competence development activities, topics and employment categories benefited by the competence development activities and finally, information related to knowledge management/learning organisations in SMEs.

II. Survey amongst SMEs on Competence Development

Ikei and partners have conducted a survey amongst a sample of 150 manufacturing SMEs per country (according to a pre-defined distribution by sector and size). Thus:

- Enterprises had to be selected according to a pre-determined sector distribution, completing 21 questionnaires per sector, except for sector 6 below (24 questionnaires):
    1. Food & Beverage (NACE Subsection DA)
    2. Textile, Clothing, Leather & Shoes (DB, DC)
    3. Wood & Furniture (DD, DN)
    4. Paper & Print (DE)
    5. Fuel, Chemical & Plastic (DF, DG, DH, DI)
    6. Metal Products, Machinery & Equipment (DJ, DK, DM)
    7. Electric & Electronics (DL)
- Enterprises had to be selected according to the following global size breakdown:
    1. 10-49 employees (small enterprises): 75 enterprises
    2. 50-249 employees (medium sized enterprises): 75 enterprises

For doing this, a questionnaire was developed by **Ikei** (in consultation with **partners**), where this questionnaire was fully structured in order to allow the survey to be conducted by telephone or fax/e-mail by the national teams. The survey was conducted between the period March-May 2004.

The final distribution of effectively received questionnaires by sector/size/country can be found in Table 1. As it can be seen, 765 questionnaires have been received.

Table 1. Sample breakdown by companies' size and sector

	Number of companies						%
	Austria (AT)	Spain (E)	France (F)	Finland (FIN)	The Netherlands (NL)	Total Europe-5	
Size (Employment)							
10-49 employees	76	74	77	78	69	374	48,9
50-249 employees	82	77	75	75	82	391	51,1
Sector							
Food & Beverage	22	22	22	21	21	108	14,1
Textile, Clothing, Leather & Shoes	22	21	20	21	21	105	13,7
Wood & Furniture	21	21	22	21	21	106	13,9
Paper & Print	22	22	23	21	21	109	14,2
Fuel, Chemical & Plastic	21	20	20	23	21	105	13,7
Metal Products, Machinery & Equipment	28	24	25	24	24	125	16,3
Electric & Electronics	22	21	20	22	22	107	14,0
TOTAL	**158**	**151**	**152**	**153**	**151**	**765**	**100,0**

Source: Leonardo CODE Project

Subsequently, all the questionnaires have been sent to **Ikei**, who has checked their quality and consistency. Afterwards, **Ikei** has recorded all the questionnaires and re-weighted the results according to real size and sector distribution in the surveyed countries. Ikei has produced tables of results, and partners have been provided with these results, together with guidelines for writing an intermediate report based on these results.

III. Work sessions/interviews with target group representatives

Ikei & partners have conducted 3-4 in-depth interviews/work sessions with qualified agents within each of their respective countries, basically with the aim of validating/contradicting the results obtained from the survey with first-hand qualitative information obtained from these qualified agents. Experts interviewed have included representatives of national SME employers' associations, representatives of public policy-making bodies in the issue of continuing training and/or enterprise development and, generally speaking, other experts in the field (i.e. university professors, experienced consultants, etc) (see Table

2). These interviews have been conducted according to a pre-defined guideline provided by **Ikei**.

Table 2. List of persons inteviewed during the research process

Countries	Persons interviewed and positions
Austria (AT)	• Mag. Dr. Ernst Gattol, Director of the National Institute for Adult Education St. Wolfgang, National Institute for Adult Education, Department: Pedagogical Enterprise • Mrs. Hellerschmid, Arbeitsmarktservice Österreich, AMS (Public Employment Service) • Univ.-Prof. Dr. Norbert Kailer, University Professor at the Johannes Kepler University Linz –Institute for Entrepreneurship and Development of Enterprises • Mr. Erwin Kaminek, Head/owner of Computerkabel Kaminek • Mag. Hannes Knett, Teamleader WIFI Network of the Austrian Federal Economic Chamber • Mag. Susannah Lippe, Head of the Department of Human Resources Development in ÖSB Consulting GmbH
Spain (E)	• Mrs Montserrat Boronat, Lecturer on Business Administration, Universitat Jaume I • Mr José Luis Garcia Molina, Jefe Servicio Innovación of the Spanish Ministry of Education and Science • Mr Valeriano Muñoz, Training Director in High Council of Spanish Chamber of Commerce
France (F)	• Mr Bernard Falck, Director for education and vocational training in MEDEF ('Mouvement des Entreprises de France') • Mr Régis Regnault, National adviser for the initial training and continuous vocational training issues in CGT ('Confédération générale du travail') • Mr Bernard Schneidermann, Office manager, Ministry in charge of industry, General Direction of enterprises. • Mr Philippe Vergnet, Consultant in 'Ad arborem', private consultancy firm • Mr Jean-François Veysset, Vice-President in charge of social affairs and education in CGPME ('Confédération générale des petites et moyennes entreprises')
Finland (FIN)	• Mrs Heljä Hätönen, Managing Director, Educa Institute Ltd. • Mrs Anna-Liisa Levonen, Counsellor, Industries Department/Division for Employment and Economic Development Centres, Ministry of Trade and Industry • Mr Christian Bäcklund, Labour Secretary, Media Union • Mrs Marita Aho, Training Policy Agent, Confederation of Finnish Industry and Employers
The Netherlands (NL)	• Mr. Stan Oude Mulders, General manager NORMA BV • Mr. Andre van der Leest, Secretary Education and Training Metaalunie • Mr. J.P.M. de Kok, research expert on HRM-policy in SMEs • Mr. J. Warning, policy expert FNV Bondgenoten

Source: Leonardo CODE Project

IV. Identification and reporting of case studies

Finally, and in order to illustrate the information obtained from the literature review, the survey and the work sessions/interviews, **Ikei & partners** have carried out two case-studies per country (10 case-studies in total). Thus, the first case study has been related with the description of a concrete national SME that can be regarded as a good practice case study, in the sense that this SME carries out a comprehensive and extensive policy for the development of their human resources. Meanwhile, the second case study has been related with the description of a relevant policy measure intended to foster competence development activities amongst national SMEs. These case-studies have been conducted according to a pre-defined guideline provided by **Ikei**.

All these results have been incorporated into this document.

The distribution of tasks for the research project amongst the different participating partners has been the following one:

- **Ikei** has co-ordinated the study and, assisted by **partners**, develop the methodology (literature survey shopping list, sample selection criteria, questionnaires, work session and case study guidelines, report indexes, etc).
- **Ikei & Partners** have conducted their respective reviews of literature and surveys. The results of these reviews have been supplied to **Ikei**, according to a pre-defined index.
- **Ikei & Partners** have conducted the SME Survey within their respective countries. The filled up national questionnaires have been sent to **Ikei.**
- **Ikei** has checked the quality of these filled up questionnaires. Subsequently, **Ikei** has processed the survey's raw data and has provided the respective national results to **Ikei & partners**, according to a pre-defined index.
- **Ikei & Partners** have analysed their country results according to this pre-designed index provided by **Ikei**.
- **Ikei & Partners** have carried out a number of work sessions and case studies within their respective countries, according to a common guideline provided by **Ikei**.
- **Ikei & Partners** have written a country report collecting all the previous analyses and results, according to a common guideline provided by **Ikei**.
- **Ikei** has written the European synthesis report, with **partners**' assistance
- **Ikei & Partners** have disseminated the project's results.

Finally, it is worth mentioning that the research team from the five countries has met twice along the project-life.

The overall project life time has been of 18 months.

3. COMPETENCE DEVELOPMENT ACTIVITIES IN SMEs: A THEORETICAL INTRODUCTION

3. COMPETENCE DEVELOPMENT ACTIVITIES IN SMEs: A THEORETICAL INTRODUCTION

3.1. THE IMPORTANCE OF KNOWLEDGE IN THE CURRENT ECONOMY

It is currently a well-recognised fact that the Western developed countries have experienced in the past few decades a transformation in which knowledge has become one of the most important inputs underpinning economic development and competitive advantage[5] in the current competitive and complex environment. In this sense, it is a well-known fact that technological innovations are likely to be diffused all the more effectively and rapidly when human capital is high[6]. Having in mind this context, it is not therefore strange that the new growth theories make economic growth dependent on the rate of accumulation of both physical and human capital, defined by the levels of knowledge, skills and competencies of the workforce[7].

This shift towards 'knowledge-based' economies has resulted in a higher demand for both skilled and 'knowledge-intensive' employment[8] in all the OECD countries during the last two decades. Specifically at EU level, the latest European Competitiveness Report[9] shows both an increase in the skill content of jobs across the Member States during the second half of the 1990s, as well as an increasing evidence of labour shortages and skill gaps, resulting in hampered economic growth for a number of EU countries and sectors[10].

From a micro perspective, enterprises in general and SMEs in particular are paying an increasing attention to the issue of knowledge, skill and competencies as key factors underpinning the enterprises' competitiveness in the so-called knowledge-based economy. In fact, and according to the results obtained also from the CODE Leonardo Survey, European SMEs attribute a very high importance (7.7 on an

[5] i.e. OECD, Employment and Growth in the Knowledge-based Economy, Paris, 1996.
[6] OECD, "Links Between Policy and Growth: Cross-country Evidence", Paris, 2000
[7] OECD, Knowledge, Work Organisation and Economic Growth, Labour Market and Social Policy-Occasional Papers No 50, Paris, 2001
[8] OECD, Knowledge, Work Organisation and Economic Growth, Labour Market and Social Policy-Occasional Papers No 50, Paris, 2001
[9] See Commission Staff Working Document, European Competitiveness Report (SEC(2003) 1299), Luxembourg, 2003
[10] European Commission, Joint Employment Report 2000, COM (2000)551 Final, Brussels, 2000

scale from 0-not important at all- to 10-very important-) to the competence development activities for sustaining their competitiveness (see section 3.3. of this report for a further discussion of this).

A number of different but complementary reasons can be suggested for explaining the enterprises and SMEs' increasing attention to developing their competence base[11]:

- The increasing internationalisation of the markets and the subsequent competitive pressures faced by SMEs, as well as the faster technological developments, shorter product life cycles and more demanding consumers[12].
- The success of technological and organisational innovations within an enterprise depends to a large extent on the ability, skills and intellectual capacity of individuals at all levels[13] to absorb change and interpret the rapidly changing environment[14]. Therefore, the old 'Tayloristic' success formulas characterised by the division of labour between 'thinkers' and 'doers' are not applicable in the current knowledge-intensive economic environment[15].
- Enterprises are increasingly aware of the fact that a competitive organisation is not only a portfolio of products or services, but also a portfolio of competencies that are used in a way that corresponds to customers' needs[16].
- Linked to the previous point, it is also clear for enterprises that an individual enterprise's intangible resources (such as the firm's specific knowledge and skills), if managed properly, accumulate over time in comparison to tangible resources such as machines and other production equipment, providing

[11] See for instance Patton,D and Marlow, S (2002) The derterminants of management training within smaller firms in the UK: What role does strategy play?, Journal of Small business and Enterprise Development, Vol 9, no.3.

[12] Berufliche Fortbildungszentren der Bayerischen Arbeitgeberverbände 'Bildungsplanung im Betrieb, Strategien zur Ökonomisierung betrieblicher Weiterbildung in kleinen und mittleren Unternehmen, Wirtschaft und Weiterbildung' (Planning of competence development activities in the enterprise, strategies to make competence development in SMEs feasible), Nürnberg, 1995

[13] Senge, P, The Fifth Discipline: The Art & Practise of The Learning Organization, New York: Doubleday, 1990.

[14] ESADE et al, Small Business Training and Competitiviness: Building Case Studies in Different European Cultural Contexts, TSER Project, Barcelona, 2001

[15] Crawford, R, In The Era of Human Capital. Harper Collins Publishers Inc, 1991.

[16] Hamel, G. and Prahalad, C.K., Competing for the Future, in Harvard Business Review, July-Aug., 1994

therefore a competitive advantage over its competitors[17]. Moreover, the management literature also stresses that competitive advantage built on capabilities, knowledge and skills are often less visible to competitors and more difficult to imitate, providing therefore a base for a sustainable and robust advantage over competitors[18].

- The preservation and development of competencies are critical issues to the enterprises[19]. Thus, the ageing process of the European workforce is resulting in a high percentage of employees being retired in the next 10-15 years, where this process may cause an important part of the enterprises' key-competencies to be lost with negative consequences on the enterprises' competitiveness, productivity and efficiency.
- Finally, and according to the results of the experts' interviews, competence development activities can be used by enterprises for a number of internal reasons, such as upgrade the working climate of the enterprise, the increase in the job satisfaction/motivation/committment of employees, the increase in the attractiveness of the enterprise for prospective employees and, generally speaking, the increase in the profitability of the enterprise.

Having in mind these elements, it is not strange that management literature advises enterprises to develop into organisations that facilitate the learning for all of their staff and continually transform themselves in order to maintain and improve their competitiveness[20]. In fact, some authors[21] point out that it is easier to rebuild an organisation when it has lost all its physical records and systems than if it has lost all its employees. In any case, it should not be forgotten that, from a micro-perspective, non-involvement in competence development activities can be a per-

[17] Porter, M, Toward a Dynamic Theory of Strategy, in Rumelt, R.P., Schendel, D.E. and D.J. Teece (eds.), *Fundamental Issues in Strategy, A Research Agenda.* Boston, Ma.: Harvard Business School Press, 1994.

[18] Ylinenpää H & Nilsson N, Knowledge Transfer and Organizational Competence Building - A Case Study of Two Knowledge-Intensive Firms, paper presented at 5th Conference on Competence Management, Helsinki, June 2000.

[19] Stenlund KL and Hörte S, Competence Accounting – Methods for Measuring and Valuing Key-Competencies, Luleå University of Technology, Division of Industrial Organization, Luleå, 1999

[20] Pedler, M., Burgoyne, J. and T. Boydell, The Learning Company. London: McGraw Hil, 1991.

[21] Kim, D. K "The link between individual and organizational learning." Sloan Management Review, Vol. 35, No. 1, 1993

fectly rational decision since, as some authors suggest, SMEs may be satisfied with their existing skills/knowledge base[22].

3.2. DEFINITION OF THE COMPETENCE DEVELOPMENT CONCEPT. WHAT ARE WE TALKING ABOUT?

The previous section has exposed that the enterprises' most strategically important resources for underpinning the enterprises' performance and competitiveness are probably their intangible resources including competencies[23].

However, and focusing the attention specifically on SMEs, most of the available empirical research studies[24] have failed to establish a positive relationship between SMEs' involvement in training activities and individual enterprises' performance. This situation is well summarised by Storey, who suggests that 'whilst it seems to be the case at national level that formal training is associated with better performance, this link has not been adequately demonstrated at the level of the small firm sector'[25].

In fact, most of the existing studies on the economic effects of upgrading human capital in SMEs have focused their attention only on formal training practices[26], ignoring other non-formal methods very important for SMEs[27] (see Table 3 for a definition of formal/non-formal training practices). In fact, some authors do argue that discrete 'learning from others' and 'on-the-job' practices are a 'hallmark' of

[22] Houssemand C. The continuing vocational training in Luxembourg, National inquiry for the European continuing vocational training survey, CEPS/INSTEAD, STATEC Bulletin, 2002

[23] Grant, R. M., "The resource based theory of competetive advantage: Implications for strategy formulation" in: California Management Review, Vol. 33, No. 3, 1991.

[24] I.e. see Baldwin, J. Chandler, W. Lee, C. and T. Papailiadis, Strategies for Success: A Profile of Growing Small- and Medium-sized Enterprises (GSMEs) in Canada. Ottawa, 1994. The results of this extensive study shows that the expenditure per employee on training is negatively correlated with business profitability.

[25] Storey, D.J., Understanding the Small Business Sector, Routledge, London, 1994, page 203

[26] A feasible reason for this is given probably by the fact that these formal training practices are easy to be grasped and defined by their visibility regarding time or financial resources consumption.

[27] Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

the small enterprises[28], where most of the learning is based on 'learning by doing'[29]. Such training practices do result in tacit and non-formal competencies and skills that form the basis for an enterprise's competitive edge (but also difficult to be recognised by standard measures -i.e. education levels or diplomas).

Table 3. Definitions of formal and non-formal learning

- **Formal learning**: Learning typically provided by an education or training institution, structured (in terms of learning objectives, learning time or learning support) and leading to certification. Formal learning is intentional from the learner's perspective.
- **Non-formal learning**: Learning resulting from daily life activities related to work, family or leisure. It can be or not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Informal learning may be intentional from the learner's perspective, but in most cases it is non-intentional (or "incidental"/random).

Source: Communication from the Commission to the European Parliament and the Council, Making a European Area of Lifelong Learning a Reality, COM (2001) 678 final, 21.11.2001.

In order to capture all these non-formal, non-traditional elements, there is an increasing attention in the business and management literature to concentrate on the concept of 'competence'. This literature has tried to provide several definitions on 'competence'. Thus, Argyris defined competence as the synthesis of knowledge (what you learn in education), skills (what you gather in your job, at your work place, and in social life from your daily experiences) and aptitudes (this is, the abilities to use these knowledge and skills) [30].

Other authors such as Nordhaug have tried to relate the term of competence to professional requirements regarding productivity, so he defines competence as 'the composite of human knowledge, skills and aptitudes that may serve productive purposes in organisations'[31]. This study will make use of this last definition, so

[28] Hendry, C., Arthur, M.B. and A.M. Jones, Strategy Through People - Adaptation and Learning in the Small-Medium Enterprise, Routledge, London 1995.

[29] Gibb, A, The Enterprise Culture and Education. Understanding Enterprise Education and its Links with Small Business, Entrepreneurship and Wider Educational Goals, in *International Small Business Journal*, Vol. 11, No. 3, 11-35, 1993.

[30] Argyris, C, Knowledge for Action: A Guide to Overcoming Barriers to Organisational Change, San Francisco: Jossey Bass Publishers, 1993.

[31] Nordhaug, O., Human Capital in Organisations- Competence, Training and Learning, Scandinavian University Press, Oslo, 1993 (page 50), taken from Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997.

competence will be understood as the **combination of human knowledge, skills and aptitudes serving productive purposes in SMEs and contributing (or expected to contribute) to their competitiveness**. From the previous discussions it is possible to suggest that competence can be defined as a final outcome (i.e. the ability of solving job assignments within the enterprise).

Any enterprise can 'develop' its competence base by a number of different possible measures, that is to say, by recruiting the 'right' competence from outside or by developing the human recourses the organisation already possesses. Of course, these investments will only be effective if they are used in an effective way that targets the market needs[32]. Therefore, competence development represents the measures an enterprise takes to develop its human knowledge and skills, and thereby its competitive capacity. These measures are operationalised as the financial or time investments a firm makes in order to improve its competitive capacity by utilising different methods for in-house competence development or by acquiring the desired competence externally.

For analysing how firms actually invest in competence development, this study will use the 'Competence Chain Model'[33]. This model offers a basic approach for describing how firms upgrade their competence base. The model includes three vital elements, which can be regarded as stages in a competence development process:

- Competence planning includes the relation to generic business goals and strategies and the process of defining actual and future competence gaps.
- Competence development, which represents the measures an enterprise takes in order to develop the competence status available within its in-house human resources. Competence development includes both formal teaching and learning methods (i.e courses) as well as informal/non-formal action-learning and on-the-job oriented methods integrated in daily work. These measures

[32] Ylinenpää H, Conclusions of Workshop 3 of the European Forum on Top Class Business Support Services, Cardiff, October 2001

[33] Nordhaug, O., Human Capital in Organisations- Competence, Training and Learning, Scandinavian University Press, Oslo, 1993 (page 50), taken from Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

may include external-to-the-enterprise[34] and internal-to-the-enterprise[35] practices.

- Competence utilisation is defined as the way the organisation makes use of the investments in new or extended knowledge in terms of organisational design, specialisation versus despecialisation, incentive systems, employee participation, etc.

Therefore, 'Competence development' addresses how organisations invest in order to fill actual or future competence gaps, while 'Competence utilisation' describes how firms make use of these investments for strengthening their competitiveness. Meanwhile, 'Competence planning' can be seen as the link to the context of a firm's competence development and utilisation. All these three elements of the 'Competence Chain Model' will be dealt with (although in different details) in this report.

In any case, and despite this general model, the concrete decisions to invest in competence development activities depend on a number of different but complementary elements that can vary amongst enterprises[36]:

- Firstly, the different environmental influences and pressures enterprises have to face. Thus, enterprises operating in stable environments have less pressure and fewer incentives to change, so in situations like these most of the learning is related to 'doing things right' by detecting and correcting errors ('single-loop learning'). Meanwhile, in more dynamic environments, enterprises probably need to question these taken-for-granted standards of doing things right, facilitating therefore a radical change of existing processes ('double-loop learning') [37].

[34] External-to-the-enterprise practices include those practices where resources from outside the enterprise are used for developing SMEs' in-house personnel. Examples include, for instance, visits to expositions/trade fairs, attendance to courses/conferences/seminars provided by external personnel, co-operation or study visits to other enterprises, reading of external information, etc.

[35] Internal-to-the enterprise competence development practices refer to those practices where internal resources available within the enterprise are used for developing in-house personnel's competencies. Examples may include courses/seminars provided by own personnel, on the job learning/learning in the daily work, in-house job /task rotation, meetings amongst personnel for knowledge exchange/quality circles, etc.

[36] Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

[37] These concepts of 'single-loop learning' and double-loop learning' have been developed by Argyris, C., and Schön, D.A., Organizational Learning. Reading, Ma: Addison- Wesley, 1978

- Secondly, the own enterprise's strategic orientations and goals, so an enterprise pursuing growth by investing in new fields of business/markets can be expected to have different competence development and acquisition strategies in comparison to enterprises trying to maintain their market competitiveness by reducing costs.
- Thirdly, the broadness and level of the existing in-house competencies. Thus, an enterprise with a broader competence base can be expected to be a more qualified and demanding buyer of external competencies. Moreover, more in-house competencies implicate a higher absorptive capacity, e.g. a higher capacity to learn new and complex material or to have a fruitful exchange with competent external partners[38].

Finally, it is worth mentioning that this research will approach the issue of competence development in SMEs from an organisational perspective rather than an individual perspective, so the basic aim of these competence development practices are intended to increase the efficiency and profitability of the enterprise[39]. Thus, this research is interested in the organisation's competence development practices and how these practices relate to the organisation's strategy, structure and /or performance, whereas the perspective of how individuals learn will not be dealt with.

3.3. EUROPEAN SMES AND COMPETENCE DEVELOPMENT ACTIVITIES: SOME PRELIMINARY CONSIDERATIONS FROM THE LEONARDO CODE SURVEY RESULTS

A previous section has shown that enterprises in general and SMEs in particular are paying an increasing attention to the issue of knowledge, skill and competencies as key factors underpinning their competitiveness levels. This importance is well reflected in the results obtained by the Leonardo CODE Survey amongst a sig-

[38] Ylinenpää H & Nilsson N, Knowledge Transfer and Organizational Competence Building - A Case Study of Two Knowledge-Intensive Firms, paper presented at 5th Conference on Competence Management, Helsinki, June 2000

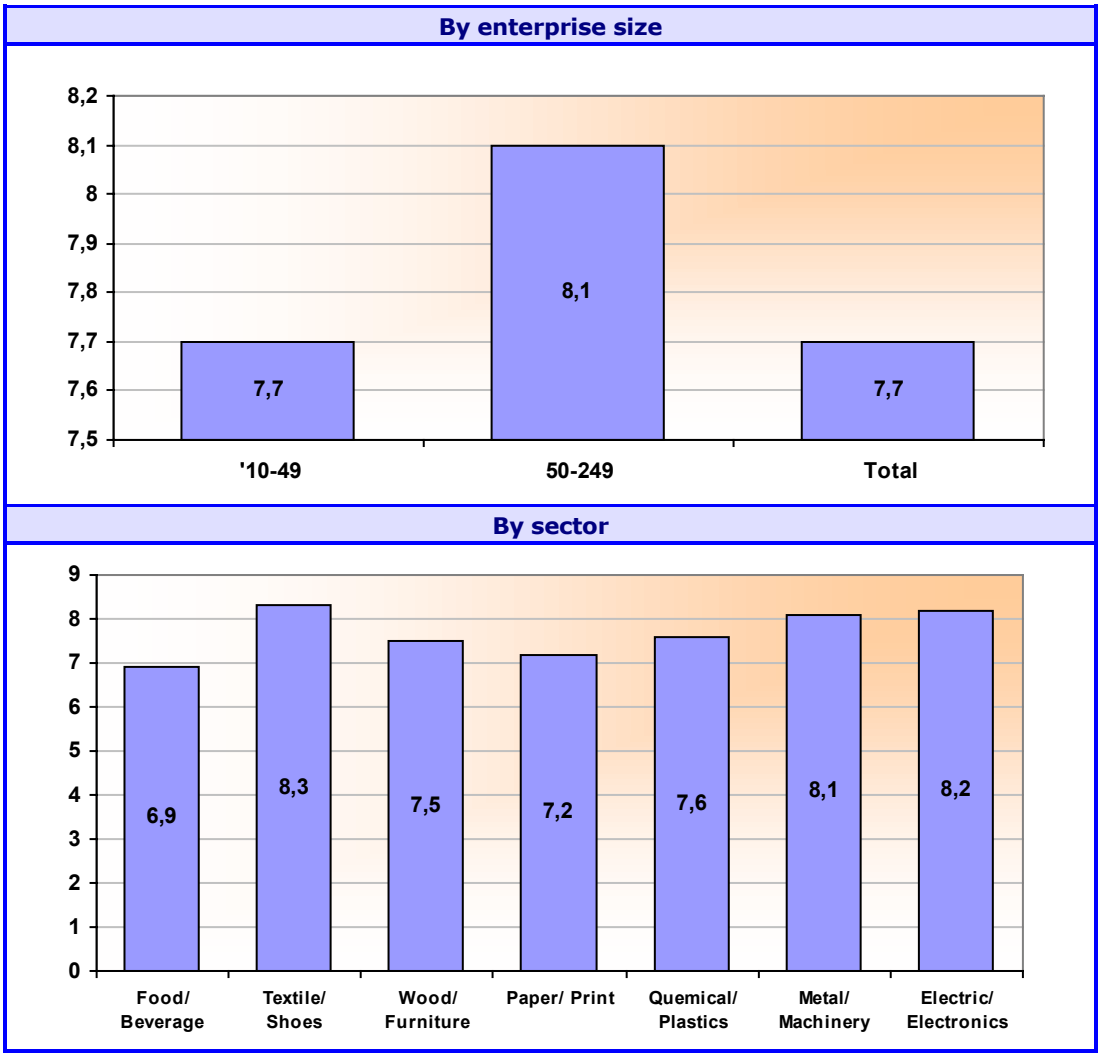
[39] Kokko, N, M Herrala, M Ahola, S Immonen, M Hailikari, and A Salminen, Osaamisen kehittäminen pk-yrityksissä (Competence Development in SMEs), in: Publications of Finnish Ministry of Labour, ESF-Good Practices Serie, 2000.

nificant sample of manufacturing SMEs in five EU countries (see chapter 2), as well as in other research studies[40].

Thus, European manufacturing SMEs attribute a very high importance (7.7 on an scale from 0 -not important at all- to 10 -very important-) to those activities intended to upgrade the enterprise's knowledge and skill base as a key element for sustaining the enterprise's competitiveness (see Graph 1). This high importance is well shared amongst SMEs irrespectively of size, sector or country considerations. Notwithstanding this, the available data suggests that this importance attributed to competence development activities is slightly higher the larger the SMEs are (8.1 amongst the medium sized enterprises in comparison to 7.7 amongst small enterprises) and in some concrete sectors (particularly textile/shoes, electric/electronics and metal products/machinery).

[40] CEPYME, 'Autónomos y formación: Necesidades, demandas y resultados' (Self-employed and training: Needs, demands and results), Madrid, 2003.

Graph 1. Importance attributed by enterprises to the competence development activities for sustaining their competitiveness, by enterprise size and sector

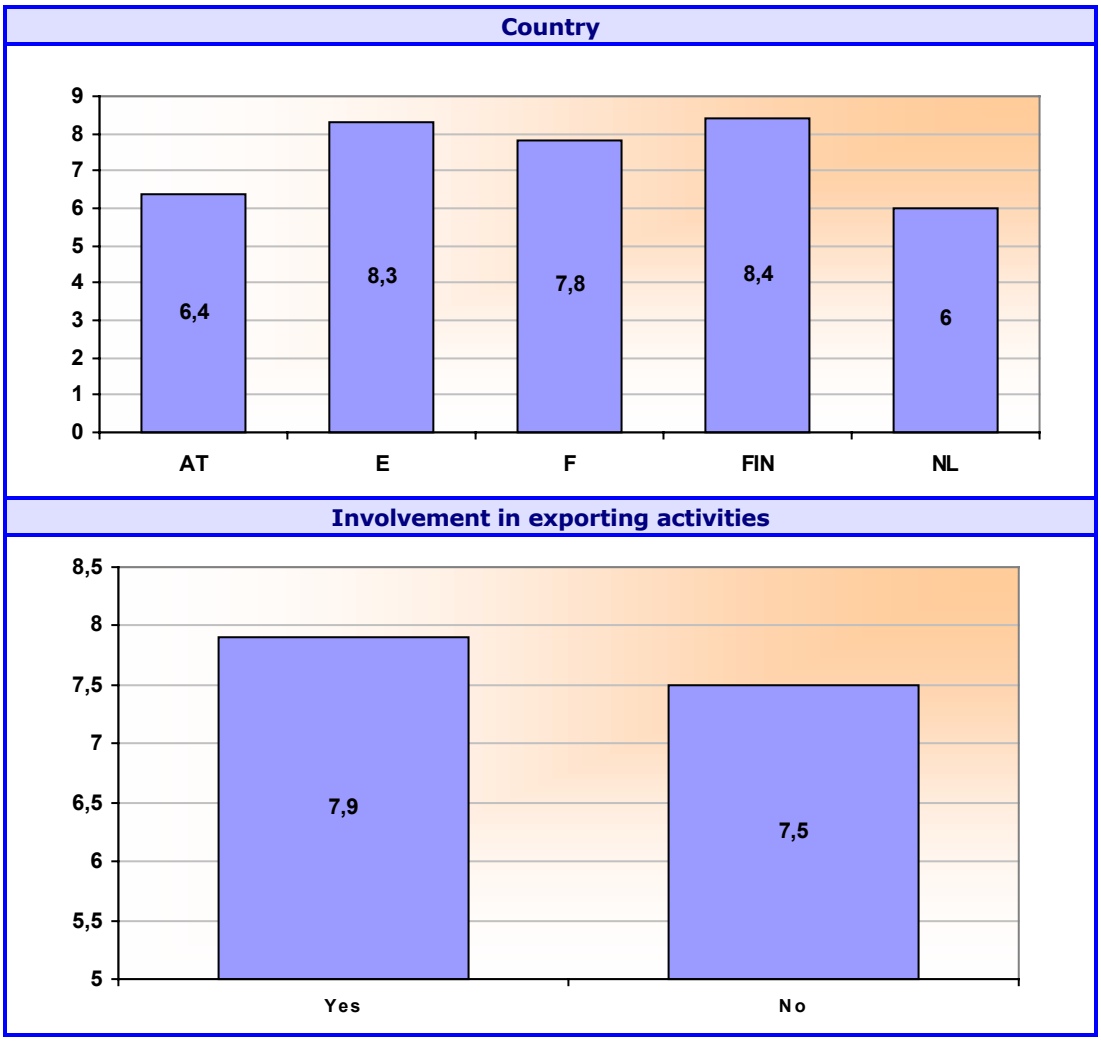


Results from '0'= Not important to '10'=very important
All enterprises
Source: Leonardo CODE Project

Meanwhile, differences by surveyed Member States (see Graph 2) show that SMEs in Finland, Spain and France attribute the highest importance levels to competence development activities for sustaining their competitiveness (ranks 8.4, 8.3 and 7.8, respectively), whereas Austrian and especially Dutch SMEs rate this importance on a smaller scale (6.4 and 6.0,respectively). Interestingly also, those SMEs involved in exporting activities show a relatively higher concern on the importance of these

competence development activities in comparison to their non-exporting counterparts (7.9 versus 7.5, respectively).

Graph 2. Importance attributed by enterprises to the competence development activities for sustaining their competitiveness, by country and involvement in exporting activities



Results from '0'= Not important to '10'=very important
All enterprises
Source: Leonardo CODE Project

As it can be seen, SMEs attribute a very high importance to the activities intended to develop the enterprise's knowledge and skill base for sustaining their competitiveness levels. This high importance can be partially explained by the fact that

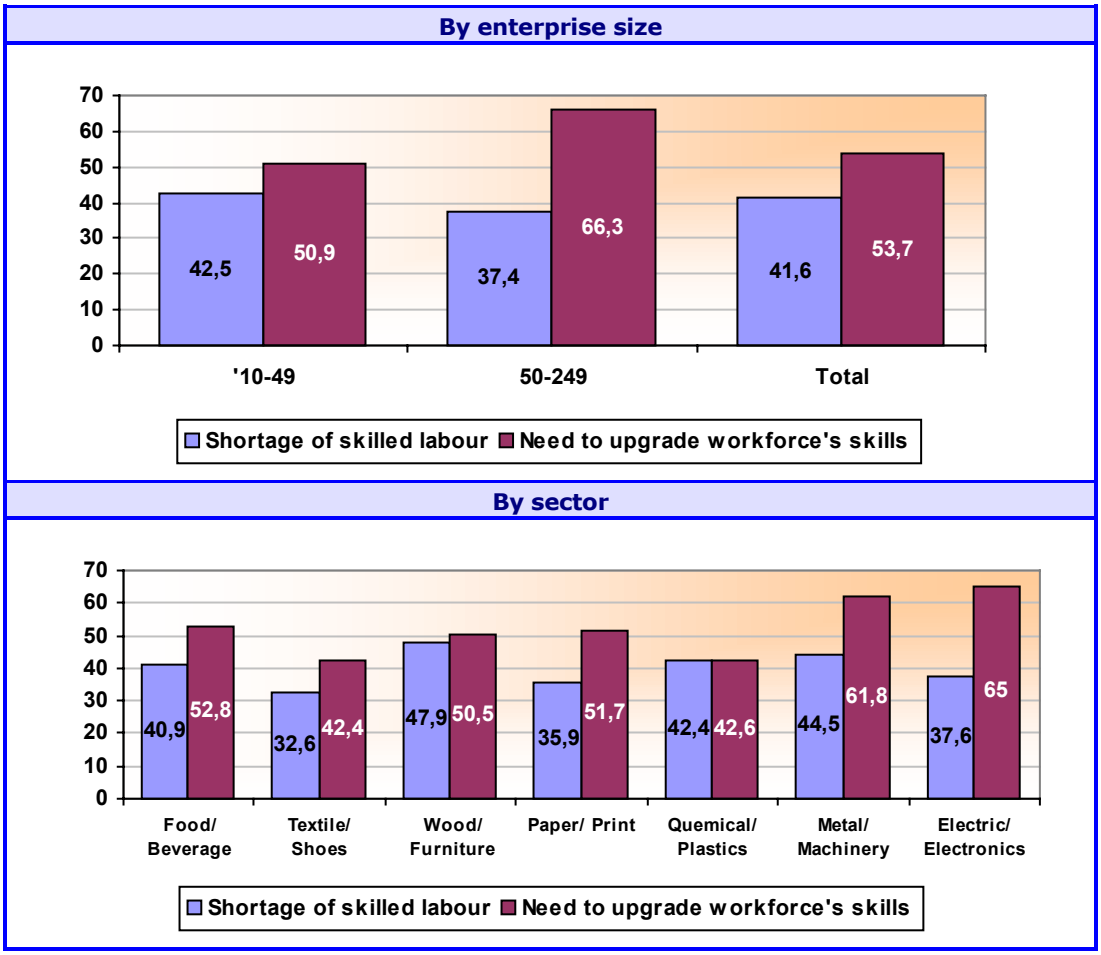
very significant shares of the European SMEs suffer (or say to suffer) from 'skills shortages'/'skills gaps'.

These concepts of 'skills shortages'/'skills gaps', firstly introduced by Green and Ashton[41], can be used in order to conceptualise different shortcomings referring to firms' occurring lack of knowledge and skills. Thus, a 'skills shortage' refers to difficulties in filling vacancies, whereas a 'skills gap' occurs when an enterprise finds out that the in-house competencies are insufficient for optimal effectiveness. When an enterprise recognises that its in-house competencies are insufficient for reaching a desirable capacity, a 'skills shortage' occurs. When an enterprise recognises that its in-house competencies are less (or differently) skilled than required for optimum effectiveness, the enterprise faces a 'skills gap'.

The Leonardo CODE survey results show that around four out of ten manufacturing SMEs admit to suffer from a shortage of skilled labour ('skills shortage'), whereas the need to upgrade SMEs' workforce's skills and competence base ('skills gap') is suggested by half of them (see Graph 3). Interestingly enough, the problem of 'skills shortages' seems to be more present amongst the small enterprises in comparison to the medium sized ones (42.5% versus 37.4%), probably due to the fact that for the highly qualified people is less attractive to work in a small enterprise for salary and career opportunity reasons. By way of contrast, 'skill gaps' are more present the larger the enterprises are, so up to 66.3% of the medium sized enterprises argue for a current need to upgrade the competencies and skill base of their workforce in comparison to 50.9% amongst the small enterprises.

[41] Green, F. and Ashton, D., Skill Shortage and Skill Deficiency: A Critique, in: *Work, Employment and Society,* 6, 2, pp. 287-301, 1992.

Graph 3. Percentage of enterprises agreeing or totally agreeing with the statements 'My enterprise is currently experiencing a lack (shortage) of skilled labour'/'My enterprise currently needs to upgrade the competencies and skill base of its workforce', by enterprise size and sector



All enterprises
Source: Leonardo CODE Project

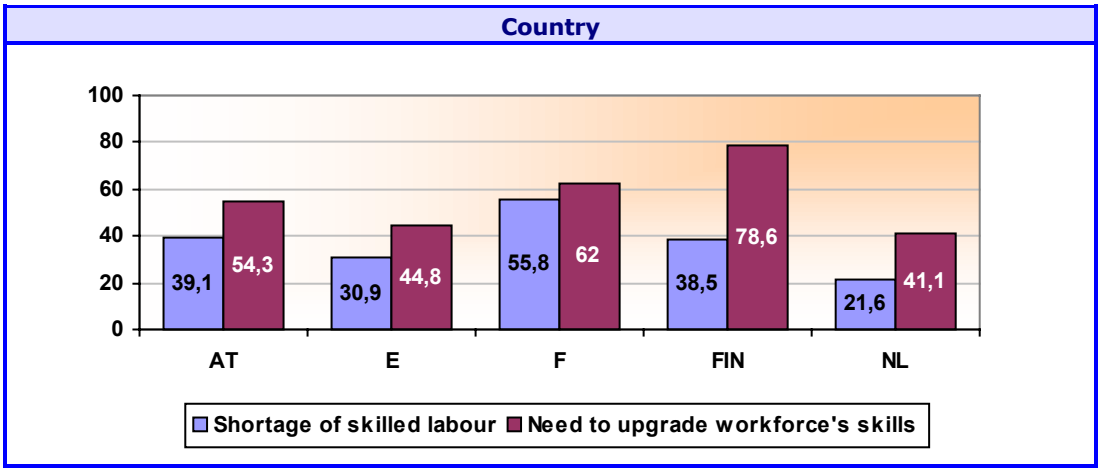
Meanwhile, sector considerations (see also Graph 3) show important differences amongst sectors on their perceptions of the shortage/gap problems. Thus, the 'shortage' problem seems to be particularly present amongst the wood/furniture and the metal products/machinery sectors (47.9% and 44.5% of SMEs identifying this problem, respectively). Meanwhile, the 'skills gap' problem seem to be particularly present amongst the electric/electronics and metal products/machinery sectors (65.0% and 61.8% affected by this problem, respectively), well above the situation in other sectors (i.e. the textile/clothing or the chemical/plastics sectors).

In any case, the 'skill gap' problem is more present than the 'skill shortage' problem in all the manufacturing sectors[42].

The previous information can be complemented when national differences are taken into account (see Graph 4). In this sense, it is possible to identify important differences amongst the surveyed EU member states concerning the importance they attribute to the 'skill shortages' and the 'skill gaps' problems. In this sense, the available data shows that the 'skill shortage' problem seems to be particularly relevant amongst the French manufacturing SMEs (55.8% of them suggest to be affected by this problem), well above the Austrian, Finnish, Spanish and especially the Dutch shares (39.1%, 38.5%, 30.9% and 21.6%, respectively). Meanwhile, the so-called 'gap' problem is much more common in all the surveyed countries in comparison to the 'shortage' problem. In any case, this 'gap' problem seems to be particularly relevant amongst the Finnish and French manufacturing SMEs (78.6% and 62.0% are affected by this problem), well above the Austrian, Spanish and Dutch cases (54.3%, 44.8% and 41.1%, respectively).

[42] The interviewed Austrian experts suggest that in sectors (like manufacturing) where long-lasting employment is predominant the entrepreneurs are in general more satisfied with the competences of their employees than in sectors (like tourism) where short-time/seasonal employment is more frequent. This is attributed to the fact that the longer employees are working in one particular enterprise the more familiar they are with their tasks and they act, therefore, more in line with the vision of the employer

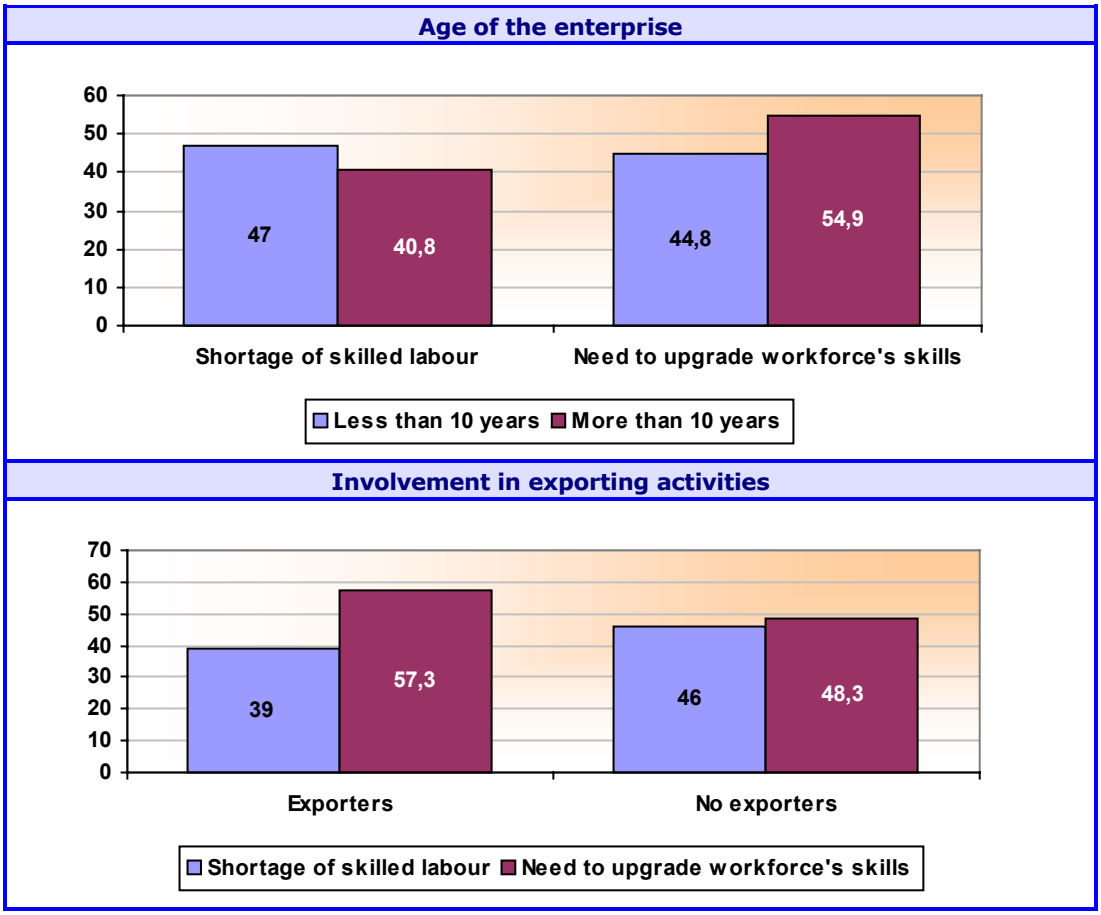
Graph 4. Percentage of enterprises agreeing or totally agreeing with the statement 'My enterprise is currently experiencing a lack (shortage) of skilled labour'/'My enterprise currently needs to upgrade the competencies and skill base of its workforce', by country



All enterprises
Source: Leonardo CODE Project

Interestingly also, age and export considerations show distinctive results on the manufacturing SMEs' shortcomings (see Graph 5). Thus, and as far as age considerations are concerned, older enterprises (more than 10 years old) are more confronted with 'skills gap' problems (54.9% of them suffer from this problem in comparison to 44.8% amongst those SMEs less than 10 years old). However, 'skill shortage' problems are less frequent amongst the older enterprises (40.8% versus 47.0%, respectively). The fact that 'new' SMEs are more confronted with difficulties in finding personnel in comparison to 'old' SMEs may explain these results.

Graph 5. Percentage of enterprises agreeing or totally agreeing with the statement 'My enterprise is currently experiencing a lack (shortage) of skilled labour'/'My enterprise currently needs to upgrade the competencies and skill base of its workforce', by age of the enterprise and involvement in exporting activities



All enterprises
Source: Leonardo CODE Project

Interestingly also, 'shortage' problems are more quoted by non-exporting manufacturing SMEs (46.0% versus 39.0% of exporting SMEs, respectively), whereas exporting SMEs seem to be more affected by 'skills gap' problems than non-exporting ones (57.3% versus 48.3%, also respectively) (see also Graph 5).

4. COMPETENCE PLANNING ACTIVITIES AMONGST SMEs

4. COMPETENCE PLANNING ACTIVITIES AMONGST SMEs

4.1. INTRODUCTION

This chapter is interested in identifying the competence planning activities that European manufacturing SMEs carry out, that is to say, the activities that SMEs conduct in order to define current and/or future competence needs in relation to the enterprise's generic business goals and strategies. For this purpose, this chapter will be structured in three main sections. Section 4.2 will try to identify to what extent manufacturing SMEs have special people within the enterprise for identifying competence needs, whereas section 4.3 will try to characterise this person(s). Finally, section 4.4 will report on the presence within manufacturing SMEs of different fomal management tools related to competence planning activities.

4.2. PRESENCE OF A SPECIAL PERSON FOR IDENTIFYING COMPETENCE NEEDS

According to the Leonardo CODE survey results, and on average, up to 49.2% of the manufacturing SMEs in the five surveyed countries have a special person or group responsible within the enterprise of identifying current or future skill needs (see Graph 6). This results implies that, on average, one out of two European manufacturing SMEs do systematically pay attention (either on a formal or informal way) to the identification of competence needs relevant for the enterprise.

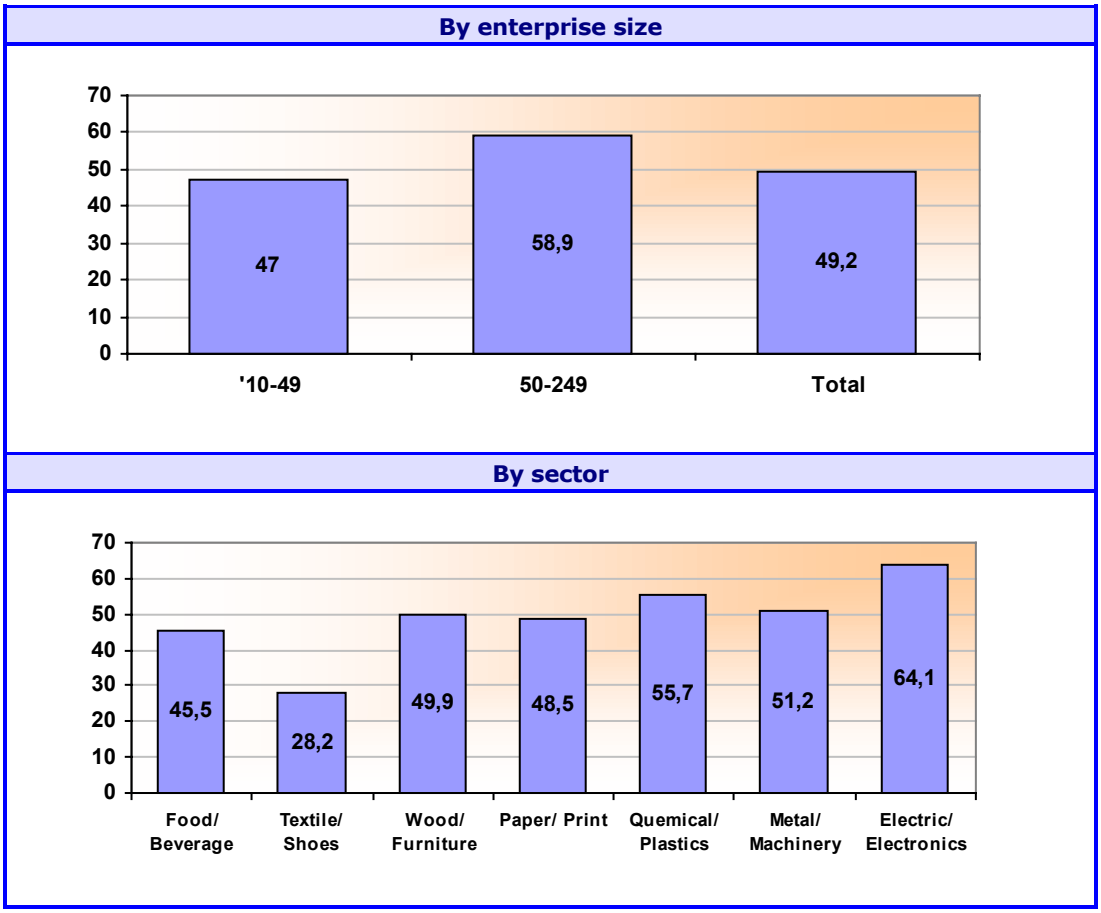
Interestingly, this presence is strongly related to size and sector-related considerations. Thus, and on the one hand, the presence of this kind of person/group is much more common amongst the medium sized enterprises in comparison to the small ones (58.9% versus 47.0%, respectively). Interestingly, other available studies confirm this positive size relation[43]. Reasons for this size effect include the limited resources that prevent SMEs from appointing someone to carry out these scanning activities, as well as the lack in manpower and management time that characterises most small entrepreneurs and managers. Thus, most employers are taken up by day-to-day worries that follow from their participation in the production process so they have limited time for planning or scanning competence needs[44]. Also, small firm employers often do not have a formal management education, and the possibilities to gain management skills by co-operating with other managing employees are limited.

On the other hand, there seems to be a certain positive relationship between the technological content of the sector and the presence of this special person/group responsible of skill needs identification. Thus, the sectors where this presence is particularly relevant correspond to electric/electronics, chemical/plastics and metal products/ machinery (64.1%, 55.7% and 51.2%, respectively), well above other less technology-intensive sectors such as food/beverages or textiles/clothing/shoes (45.5% and 28.2%, also respectively).

[43] Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003

[44] Tillaart, H. van den, and J. Warmerdam, Arbeidsomstandigheden in kleine bedrijven (Working conditions in small enterprises),VUGA, The Hague, 1997.

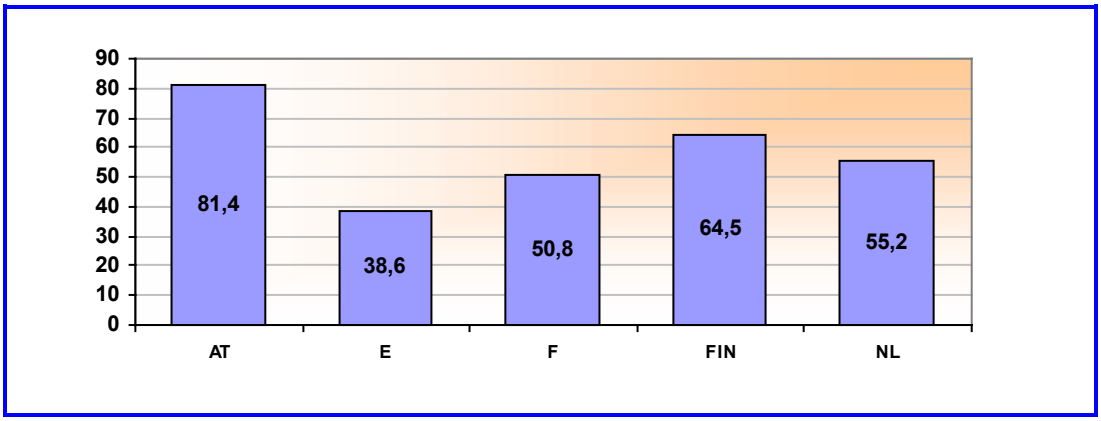
Graph 6. Percentage of enterprises who suggest to have a special person or group responsible within the enterprise for identifying current or future skill needs, by enterprise size and sector



All enterprises
Source: Leonardo CODE Project

Interestingly, these strong differences are particularly relevant when country considerations are taken into account (see Graph 7). Thus, and according to the available data, this presence of a person/group responsible of identifying competence needs is particularly common amongst the Austrian and, to a lesser extent, the Finnish manufacturing SMEs (81.4% and 64.5%, respectively). By way of contrast the lowest presence can be found amongst the Spanish SMEs, since only 38.6% argue to have within them this kind of person/group. Meanwhile, this presence can be found in approximately one out of two Dutch and French SMEs (55.2% and 50.8%, respectively). These differences probably are related to different enterprise cultures amongst the different surveyed countries.

Graph 7. Percentage of enterprises who suggest to have a special person or group responsible within the enterprise for identifying current or future skill needs, by country



All enterprises
Source: Leonardo CODE Project

The presence of a special person or group responsible within the enterprise for identifying current or future skill needs can be further characterised according to a number of additional variables (see Table 4). Thus, this presence seems to be particularly higher amongst those manufacturing SMEs that attribute a higher importance to competence development activities for sustaining the enterprise competitiveness and amongst those SMEs that are experiencing both 'skills shortages' and 'skills gaps'. Interestingly also, this presence seems to be positively related with the enterprise's age and the presence of exporting activities within the enterprise, and especially with the economic situation of the enterprise (the better the situation the higher the presence).

Table 4. Percentage of enterprises who suggest to have a special person or group responsible within the enterprise for identifying current or future skill needs, by a number of additional variables

Variables	%
Importance of competence development activities for the enterprise competitiveness	
• Key element	50.1
• Not a key element	43.2
SMEs experiencing skills shortages	
• SMEs experiencing skills shortages	52.2
• SMEs not experiencing skills shortages	47.0
SMEs experiencing skills gaps	
• SMEs experiencing skills gaps	52.0
• SMEs not experiencing skills gaps	45.9
Age of the enterprise	
• Less than 10 years old	51.3
• More than 10 years old	48.9
Presence of exporting activities	
• Exporting SMEs	50.8
• Non-exporting SMEs	47.0
Economic situation of the enterprise	
• Good or very good	54.0
• Intermediate	46.9
• Bad or very bad	32.1

All enterprises
Source: Leonardo CODE Project

4.3. CHARACTERISATION OF THE PERSON(S) RESPONSIBLE OF IDENTIFYING COMPETENCE NEEDS

The previous section 4.2 has shown that around half of the manufacturing SMEs have a special person or group responsible within the enterprise for identifying current or future skill needs. This section is interested in describing who is this person/group.

In this sense, the Leonardo CODE survey results show that this identification task is the role of two main groups (see Table 5), i.e., the enterprise's own management team and the owner/general manager (38.7% and 30.0% of the responses, respectively)45. Other persons/groups are less present, so in a 16.2% of the manufacturing SMEs this identification task is responsibility of a human resources manager/training director, whereas only in a 7.1% of cases the identification proc-

[45] Data only referred to SMEs with a person or group responsible of the identification task.

ess is jointly conducted by a group formed by representatives of the management team and employees.

Table 5. Percentage of enterprises according to the person/group(s) responsible of identifying current or future skill needs, by enterprise size

Variables	Enterprise size		
	10-49	50-249	Total
The owner/ the general manager	34.4	14.0	30.0
The human resources manager/training director (if different from above)	13.2	27.0	16.2
The management team	37.1	44.3	38.7
A group formed by representatives of the management team and employees	7.3	6.0	7.1
Other	7.9	8.7	8.1
Total	100.0	100.0	100.0

Only enterprises who have a special person or group for this task
Source: Leonardo CODE Project

Interestingly enough, size considerations (see also Table 5) show that the importance of the owner/general manager seems to be particularly relevant amonsgt the smaller enterprises. Thus, up to 34.4% of the manufacturing small enterprises suggest this person to be responsible of the identification task, well above the percentage amongst the medium-sized enterprises (14.0%). Obviously enough, the central role that owners/general managers carry out within the smaller enterprises, as well as the lowest presence of management teams in these enterprises, explain this result, also confirmed by other studies[46]&[47]. Moreover, some studies stress the central role of the SME owners/general managers, not only in identification but also in understanding the concrete investment decisions on competence development activities[48].

[46] Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003

[47] CEDEFOP, Internationalization and changing skills needs in European small firms, Synthesis Report (CEDEFOP Reference series 23), Luxembourg, 2002.

[48] Examples include:

- Durchschlag, M., Personalentwicklung in Klein- und Mittelbetrieben – Theorie und Praxis (Personnel Development in Small and Medium-Sized Enterprises – Theory and Practice), Thesis at the University of Applied Sciences, Vienna, 2000
- Machacek, T., Der Weiterbildungsmarkt in Österreich – Marktstudie und Trendanalyse (The Market for Further Education in Austria – Market Study and Analysis of Trends), Thesis at the Vienna University of Economics and Business Administration, Vienna, 2001
- Schneeberger, A and B. Kastengruber, Weiterbildung der Erwerbsbevölkerung in Österreich (Further Education of the Active Population in Austria), Institute for Research on Qualification and Training of the Austrian Economy (IBW), Vienna, 1998
- Storey, DJ, Understanding the Small Business Sector, Routledge, London, 1994.

By way of contrast, the importance of the management team or the human resources manager/training director is higher the larger the enterprises are. According to Dutch research, the presence of highly skilled managers within an SME results is higher probability of providing formal training to their employees[49]. Some studies[50] also suggest that the education level of the manager/management team has a positive impact on the SME's involvement in competence development practices.

Meanwhile, sector considerations show important differences amongst the sectors concerning the concrete person/group responsible of identifying skill needs (see Table 6). Thus, owner/general managers are particularly important amongst the wood/furniture sector, whereas the textile/clothing sector is the one where human resources manager/training directors or the own management team have the most prominent role.

Table 6. Percentage of enterprises according to the person/group(s) responsible of identifying current or future skill needs, by sector

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
The owner/General manager	22.9	13.7	51.3	25.4	27.3	30.4	31.8
The human resources manager/ training director	18.5	25.2	13.0	17.9	6.9	19.6	13.3
The management team	41.8	47.0	26.2	41.5	44.6	35.8	41.6
A group by representatives of management board & employees	5.6	13.8	9.0	13.6	5.7	4.6	7.3
Other	11.2	0.3	0.5	1.7	15.5	9.6	6.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Only enterprises who have a special person or group for this task
Source: Leonardo CODE Project

The comparison between surveyed EU Member States (see Table 7) also shows important differences amongst two main groups of countries. Thus, and on the one hand, manufacturing SMEs in Austria, France and Finland are characterised by the predominant role of one specific actor in the identification of current or future skill needs (in Austria the owner/general manager, whereas in France and Finland it is

[49] De Kok, J.M.P., L. M. Uhlaner and A.R. Thurik, Human Resource Management within small and medium-sized firms: facts and explanations, *Strategic Study B200103*, Zoetermeer: EIM, 2002.
[50] Barba, M.I., Aragón, A., and R. Sanz, 'Condicionantes de la formación en las pymes industriales' (Determinants of training in manufacturing SMEs), in Economía Industrial, no. 334, Madrid, 2000.

the management team[51]). Meanwhile, and amongst the Spanish and Dutch SMEs, this task of skill needs identification is more widespread amongst three main groups, i.e. the owner/general manager, the human resources manager/training director and the management team, although it is precisely the second actor (i.e. the human resources manager/training director) the one with the highest percentages.

Table 7. Percentage of enterprises according to the person/group(s) responsible of identifying current or future skill needs, by country

Variables	Countries				
	AT	E	F	FIN	NL
The owner/General manager	61.0	24.6	27.8	22.4	26.4
The human resources manager/training director	4.8	32.0	7.0	6.2	27.3
The management team	20.4	31.1	49.4	55.1	25.8
A group by representatives of management board & employees	13.7	3.4	8.7	10.9	2.1
Other	0.1	9.0	7.2	5.5	18.3
Total	100.0	100.0	100.0	100.0	100.0

Only enterprises who have a special person or group for this task
Source: Leonardo CODE Project

Interestingly also, and as it was already mentioned, the previous results also show that this identification task is very seldom a joint responsibility of management and employees representatives in all the countries, although existing differences by countries can be wide to some extent. Thus, and whereas this joint group made by representatives of management board & employees is responsible amongst 13.7% and 10.9% of Austrian and Finnish SMEs[52], these percentages are much lower in the Spanish or Dutch cases (3.4% and 2.1%, respectively).

The previous results can be complemented when age and exporting considerations are taken into account (see Table 8). Thus, the available data suggests that the identification task is particularly responsibility of the owner/general manager amongst the young (less than 10 years old) and the non-exporting SMEs. Meanwhile, the responsibility of the management team is more present amongst the older enterprises (more than 10 years old) and the exporting ones.

[51] Similar result is supported in OPCA2, Gestion et développement des compétences : nouvelles attentes, nouveaux besoins (management and competence development : new expectations, new needs), Paris, 2001.

[52] Other Finnish research [i.e. Hätönen, H, Osaava henkilöstö – nyt ja tulevaisuudessa (Skillful personne – now and in the future), MET Publishing, Helsinki, 1999] also suggests this important role amongst Finnish managers and employees for competence planning activities.

Table 8. Percentage of enterprises according to the person/group(s) responsible of identifying current or future skill needs, by age of the enterprise and involvement in exporting activities

Variables	Age of the enterprise		Exporting activities	
	Less than 10 years	More than 10 years	Exporting SMEs	Non exporting SMEs
The owner/ the general manager	53.9	26.6	21.5	45.0
The human resources manager/training director	20.5	15.6	18.9	11.3
The management team	22.9	40.9	45.1	27.3
Group by representatives of management team/ employees	0.2	8.0	4.6	11.4
Other	2.6	8.9	9.9	4.9
Total	100.0	100.0	100.0	100.0

Only enterprises who have a special person or group for this task
Source: Leonardo CODE Project

4.4. PRESENCE OF FORMAL MANAGEMENT TOOLS RELATED TO COMPETENCE PLANNING

The information contained in the previous two sections can be complemented with information on the presence within the manufacturing SMEs of a number of formal human resources management tools related to competence planning[53]. Basically, these tools include i) defined process(es) for the recruitment and selection of personnel, ii) formal system(s) for evaluating the personnel training needs and, finally, iii) written training plans.

According to the available Leonardo CODE survey results, around a 36.9% of the manufacturing SMEs have got a written training plan, whereas 34.1% and 32.7% of SMEs have got a defined process for the recruitment/selection of personnel and a formal system for evaluating the personnel training needs, respectively (see Table 9). All in all, manufacturing SMEs argue to have, on average, 1 out of the 3 suggested human resources management tools. As it can be seen, the presence of these tools is lower in all cases than the percentage of SMEs that argue having a person/group responsible of identifying skill needs (see section 4.2). This result probably implies that for a large percentage of SMEs, these competence planning

[53] Some of these instruments (i.e. defined process(es) for the recruitment and selection of personnel, formal system(s) for evaluating the personnel training needs and written training plan(s)) are also discussed in section 7.2 when dealing with the formalisation of in-house knowledge within manufacturing SMEs.

activities are carried out on a rather informal basis, mainly based on feelings than in analytical terms, although this may not mean that plans do not exist in the responsible person's[54].

This presence of formal management tools related to competence planning shows a positive relationship with enterprise size considerations (see also Table 9). Thus, and whereas small enterprises have got on average 0.9 tools (out of 3), this ratio goes up to 1.7 amongst the medium sized enterprises. A description of the availability of each one of these tools shows that 31.5% of small manufacturing enterprises have got a defined process for the recruitment and selection of personnel in comparison to 46.3% amongst the medium-sized ones. Meanwhile, only 28.8% and 29.8% of small enterprises say to have a formal system for evaluating personnel's training needs and a written training plan, respectively, where these percentages go up again to 50.6% and 68.8% amongst the medium sized enterprises, also respectively. These enterprise-size related results are also confirmed by additional existing literature on the topic[55], and reveal a lower degree of formality amongst the smallest enterprises. Several reasons can be pointed out for explaining this lower formality degree, firstly, the SMEs' fear to lose their flexibility when formalising[56]. Secondly, the fact that SMEs have got relatively few employees (so

[54] Examples include:

- Wagner, H., Wehling M & Weingärtner M, 'Stand und Entwicklung der betrieblichen Weiterbildung in kleinen und mittleren Unternehmen' (Status Quo and competence development in SMEs) in: Schreyögg, G. and Jörg Sydow (editors) Managementforschung 5, Empirische Studien, München, 2000
- AGEFOS PME, Perspectives 2004 : Emploi et formation dans les PME (Prospects 2004: employment and training in SMEs), Paris, October 2003.

[55] Examples include:

- AGEFOS PME, Perspectives 2004 : Emploi et formation dans les PME (Prospects 2004 :employment and training in SMEs), Paris, October 2003.
- De Kok, J.M.P., L. M. Uhlaner and A.R. Thurik, Human Resource Management within small and medium-sized firms: facts and explanations, *Strategic Study B200103*, Zoetermeer: EIM, 2002.
- Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003
- Lee, GL, Strategic management and the smaller firm, in: Small Business and Enterprise Development 2, pp. 158-164, 1995.
- Kailer, N., Personalentwicklung und Weiterbildung in Österreich. Empirische Ergebnisse und Entwicklungstendenzen. (Personnel Development and Further Education in Austria. Empirical Results and Development Tendencies), in: Kailer, N. Personalentwicklung in Österreich (Personnel Development in Austria), p. 335-374, Vienna, 1995
- Matthews, C.H. & Scott, S.G.: "Uncertainty and planning in small and entrepreneurial firms: An empirical assessment". Journal of Small Business Management, pp.34-52, October 1995.

[56] Koch, C.L.Y & E. van Straten, Personeelsbeleid in enkele MKB-bedrijven (personnel management within a few SMEs), *Strategic study B9703*, Zoetermeer: EIM, 1997

decisions regarding personnel management have to be made less often and therefore no formal methods are required)[57]. Thirdly, the fact that SMEs are dominated by daily business activities and do not have time for competence development strategies, so the majority of SMEs respond to an ad-hoc basis when deciding upon qualification measures[58]. Finally, the elaboration of in-depth need analyses is usually considered as too difficult and awkward by SMEs[59], where this barrier is probably linked to the lack of personnel concentrated on training and personnel development issues in most SMEs[60].

Table 9. Percentage of enterprises with formalised human resources management tools related to competence planning, by enterprise size

Variables	Enterprise size		
	10-49	50-249	Total
Defined process(es) for the recruitment and selection of personnel	31.5	46.3	34.1
Formal system(s) for evaluating the personnel training needs	28.8	50.6	32.7
A written training plan	29.8	68.8	36.9
Average number of tools	0.9	1.7	1.0

All enterprises
Source: Leonardo CODE Project

[57] Observatoire des PME, Gestion du personnel et de l'emploi dans les petites entreprises (human resources and employment management in SMEs) in Regards sur les PME n°3, Paris, 2003.

[58] Kailer, N and J. Steinringer, Personalentwicklung in Klein- und Mittelbetrieben. Bedarfe und Trends in einer dynamisierten Wirtschaft (Personnel Development in Small and Medium-Sized Enterprises. Needs and Tendencies in a Dynamic Economy), Public Employment Service Austria (AMS), Vienna, 2000

[59] Hätönen, H, Osaava henkilöstö – nyt ja tulevaisuudessa (Skillful personne – now and in the future), MET Publishing, Helsinki, 1999

[60] Suurnäkki, T, M Rehumäki, H Thomander, R Vuorio, J Ihatsu and J Oksala, Henkilökohtaisen kehityssuunnitelmamallin laatiminen pienyritysten käyttöön (Formulating a personal development plan model for small enterprises), in: Suurnäkki, T, M Rehumäki, H Thomander, R Vuorio, J Ihatsu, J Oksala and M Nummi (eds.) Osaamisen analysointi ja suunnitelmallinen kehittäminen – Kaksi näkökulmaa yritysten ja oppilaitosten yhteistyöhön (Analysing and systematic development of competence – Two perspectives to the co-operation between companies and educational institutes), Publications of National Board of Education, Worklife qualitions 2/2000, Helsinki, 2000.

Interestingly also, this presence of formal tools for competence planning purposes is much higher amongst those SMEs who argue for the key importance of competence development activities for their competitiveness (1.1 in comparison to 0.8 tools out of 3, respectively) (see Table 10). Thus, and just as an example, up to 27.9% of those SMEs not particularly concerned about the importance of competence development activities have a written training plan, whereas this percentage goes up to 38.2% in the case of those SMEs particularly concerned.

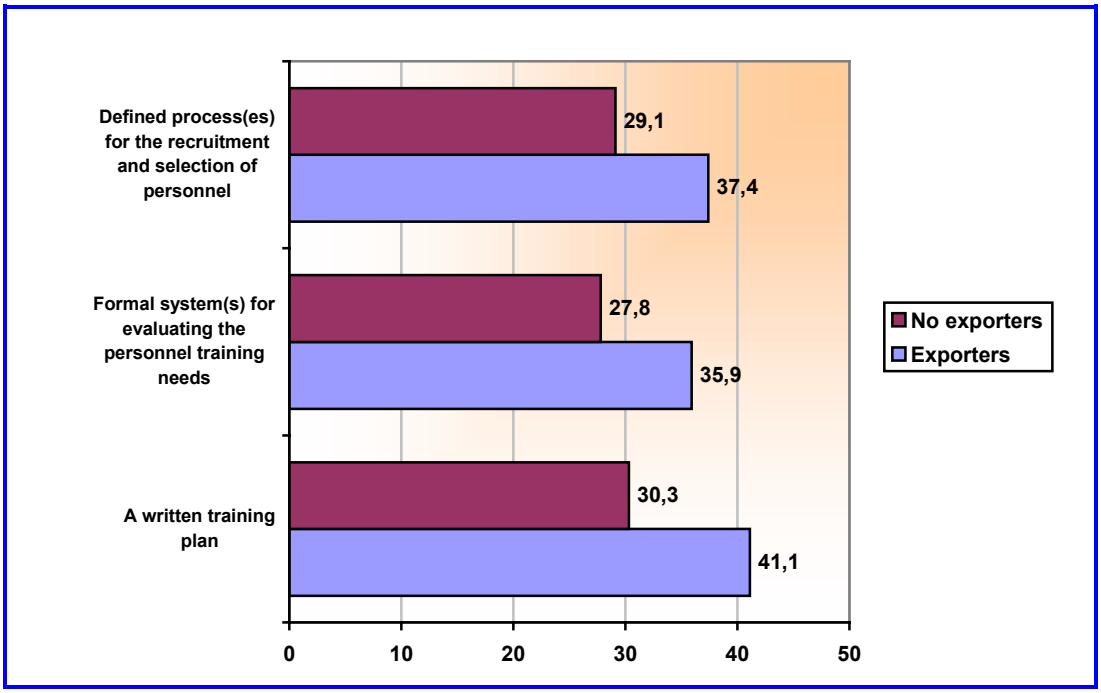
Table 10. Percentage of enterprises with formalised human resources management tools related to competence planning, by enterprises' assessment of the importance of competence development activities as a key element for the enterprise competitiveness

Variables	Attitude of enterprises to competence development activities	
	Key element	Not a Key element
Defined process(es) for the recruitment and selection of personnel	35.1	27.3
Formal system(s) for evaluating the personnel training needs	34.3	22.4
A written training plan	38.2	27.9
Average number of tools	1.1	0.8

All enterprises
Source: Leonardo CODE Project

Also, it is worth mentioning that formal competence planning tools are more present amongst those SMEs with exporting activities (see Graph 8). Thus, whereas exporting manufacturing SMEs have 1.1 tools (out of 3), this ratio goes down to 0.9 amongst the non-exporting SMEs. A in-depth view on the different tools shows that, as examples, 41.1% and 37.4% of the exporting SMEs argue to have a written training plan or follow a defined process for the recruitment and selection of personnel, respectively, whereas these percentages are much lower amongst the non-exporters (30.3% and 29.1%, also respectively).

Graph 8. Percentage of enterprises with formalised human resources management tools related to competence planning, by involvement in exporting activities



All enterprises
Source: Leonardo CODE Project

It is interesting also to notice the important existing differences in the presence of these formal competence-planning tools when country or sector considerations are taken into account. Thus, and focusing on national differences (see Table 11), these tools are particularly present amongst the Dutch and French SMEs (1.2 tools out of 3 in both cases), followed by Austrian and Finnish SMEs (1.0 in both cases). By way of contrast, the lowest presence of these tools corresponds to the Spanish SMEs, with an average ratio of 0.8 out of 3. The description of the situation of the different defined tools shows that, for instance, defined process(es) for the recruitment and selection of personnel are particularly present amongst the Dutch SMEs (41.6%), well above the situation amongst Spanish SMEs (30.3%). Meanwhile, up to 40.8% and 45.7% of the French SMEs have formal system(s) for evaluating the personnel training needs or have a written training plan, respectively, where this situation seems to be particularly positive in comparison to the Spanish case (21.1% and 27.9%, also respectively). Finally, French SMEs are particularly endowed with written training plans, where this result is explained by the legal obligation made to French enterprises with 50 or more employees in order to

have a written training plan (formal systems to evaluate personnel training needs can also be an input for this written training plan)[61].

Table 11. Percentage of enterprises with formalised human resources management tools related to competence planning, by country

Variables	Countries				
	AT	E	F	FIN	NL
Defined process(es) for the recruitment and selection of personnel	38.2	30.3	35.0	35.0	41.6
Formal system(s) for evaluating the personnel training needs	33.8	21.1	40.8	38.6	37.9
A written training plan	31.3	27.9	45.7	29.4	38.0
Average number of tools	1.0	0.8	1.2	1.0	1.2

All enterprises
Source: Leonardo CODE Project

Meanwhile, and as far as sector considerations are concerned (see Table 12), the sectors with a higher presence of these formal competence planning tools are electric/electronics and metal/machinery, with 1.4 and 1.2 tools out of 3, respectively. By way of contrast, these tools seem to be less present amongst the wood/furniture and textile SMEs (average scores of 0.4 and 0.7 out of 3, also respectively). Meanwhile, the remaining sectors occupy an intermediate position.

Table 12. Percentage of enterprises with formalised human resources management tools related to competence planning, by sector

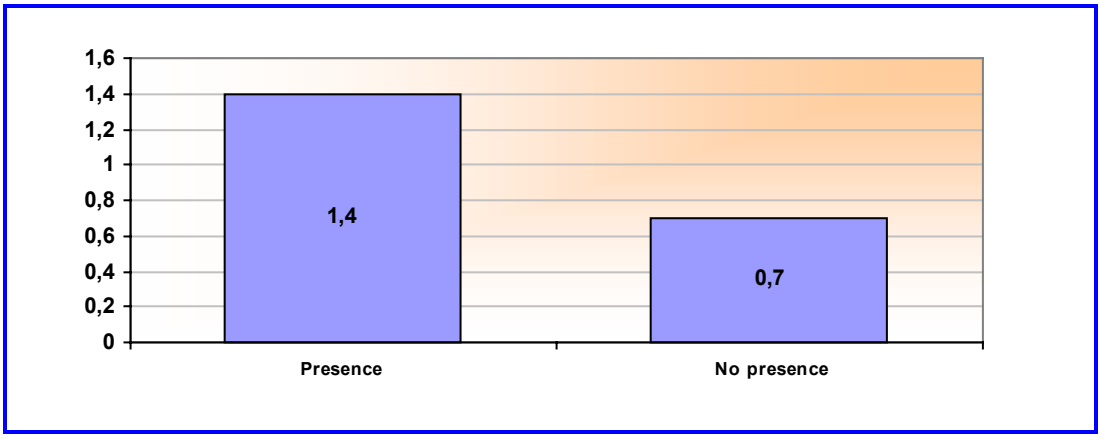
Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
Defined process(es) for the recruitment and selection of personnel	37.1	25.7	18.0	31.9	34.1	38.3	50.8
Formal system(s) for evaluating the personnel training needs	37.7	17.4	12.6	24.9	34.2	41.9	43.1
A written training plan	38.2	25.0	14.4	39.4	46.3	40.3	50.0
Average number of tools	1.1	0.7	0.4	1.0	1.1	1.2	1.4

All enterprises
Source: Leonardo CODE Project

[61] The French Law establishes that in enterprises having 50 employees or more, and once a year before the 31st of December, the employer has to present to the representatives of employees a formal training plan for the year to come. Most SMEs over 50 employees comply with this obligation. For the constitution of the training plan, a number of enterprises also use their OPCA ("Organisme paritaire collecteur agréé": these specific organizations, run jointly by trade unions and professional organizations, collect the regulatory taxes related to vocational training; they may also counsel the enterprises wishing to develop a training project).

Interestingly also, the Leonardo CODE survey results suggest that the presence of formal competence planning tools is positively related with the presence within the enterprise of a person/group responsible of identifying current/future skill needs (see Graph 9). Thus, and whereas these SMEs that have this person/group have got, on average, 1.4 tools out of 3, this ratio goes down to 0.7 tools amongst those SMEs that do not have this person/group.

Graph 9. Average number of formalised human resources management tools related to competence planning, according to the presence/non presence within SMEs or a person/group responsible of identifying current/future skill needs



All enterprises
Source: Leonardo CODE Project

5. COMPETENCE DEVELOPMENT ACTIVITIES AMONGST SMEs

5. COMPETENCE DEVELOPMENT ACTIVITIES AMONGST SMEs

5.1. INTRODUCTION

Chapter 3 has shown that any enterprise wishing to filling up current or future skills gaps may choose between acquiring necessary competencies outside the boundaries of the enterprise, developing in-house competencies required or, finally, combining the two measures.

This chapter is interested in analysing the different practices that manufacturing SMEs take in order to develop the competence status available within its in-house human resources (what in chapter 3 was defined as competence development). For this purpose, section 5.2 will analyse the SMEs' preference of formal versus non-formal competence development methods for upgrading their in-house competencies and skills, whereas section 5.3 will look into the main concrete practices preferred amongst manufacturing SMEs for this purpose.

Meanwhile, section 5.4 will show the different role that several external-to-the-enterprise agents have for manufacturing SMEs as sources of knowledge and competence, whereas section 5.5 will provide information on the strong existing differences on the attention small manufacturing SMEs pay on different categories of staff when investing in the development of their in-house human resources. Finally, section 5.6 will look into the main competence areas identified by manufacturing SMEs.

5.2. PREFERENCE OF MANUFACTURING SMES OF FORMAL/NON-FORMAL COMPETENCE DEVELOPMENT METHODS

The development of the in-house personnel's competencies and skills can be gained by utilising a variety of different training and learning methods/practices. Thus, these methods/practices may include both formal teaching and learning methods (i.e courses) as well as informal/non-formal action learning and on-the-job oriented methods integrated in daily work.

Generally speaking, most of the traditional literature on competence development on enterprises in general and specifically on SMEs has focused its attention on tra-

ditional, 'formal' and visible methods (i.e., learning activities provided by an education or training institution and very often leading to qualification standards). Of course, this focus on this type of formal/visible methods/practices implies that other less formal/visible practices are not usually recognised.

However, a number of authors[62] have stressed that qualification standards measured as level of formal education may have a limited relevance in small enterprises, since 'learning from others' and 'on-the-job' practices are a 'hallmark' of the small enterprises' competence development practices[63]. Of course, such learning does not result in any formal qualifications that can be recognised by standard measures such as education level[64].

The Leonardo CODE survey provides some information on the manufacturing SMEs' general preference of formal[65] versus informal[66] methods for developing their in-house competence base. According to these results, the largest share of manufacturing SMEs (up to 54.4%) suggest that both formal and informal methods are equally rated as relevant for them, whereas 38.9% of SMEs argue for their preference of informal methods and only 5.5% argue for formal methods (see Table 13). Interestingly, this important preference for informal practices is also confirmed by Dutch[67] and Danish empirical evidence[68]. Thus, the Danish study shows that only very few Danish enterprises point to formal training practices as more important in comparison to non-formal training practices, whereas half of the enterprises consider the two forms equally important, and 40% consider the non-formal training most important.

[62] I.e. Storey, D.J.,Understanding the Small Business Sector, London: Routledge, 1994.
[63] Hendry, C., Arthur, M.B. and A.M. Jones, Strategy Through People - Adaptation and Learning in the Small-Medium Enterprise, Routledge, London 1995.
[64] Of course, this does not necessarily mean that formal measures are irrelevant factors for SMEs.
[65] Formal training refers to any training acquired in a course, either external or internal one.
[66] Informal training refers to any training or knowledge acquired on the job.
[67] De Kok, J.M.P., L. M. Uhlaner and A.R. Thurik, Human Resource Management within small and medium-sized firms: facts and explanations, *Strategic Study B200103*, Zoetermeer: EIM, 2002.
[68] Oxford Insight & Handelshøjskolecentret: Praksislæring i industrien – praksislæringens udbredelse inden for industrien (Situated Learning – the Diffusion of Situated Learning in the Industries), financed by Industriens Uddannelsessekretariat (Secretariat of Industrial Training). Copenhagen, 2002.

Table 13. Percentage of enterprises, according to their preference of formal/informal training practices, by enterprise size

	Enterprise size		
	10-49	50-249	Total
The formal training acquired in a course (external or internal)	5.7	4.9	5.5
The informal training and knowledge acquired on the job	40.7	30.8	38.9
Both equal	52.8	62.1	54.4
Don't Know/ No answer	0.9	2.3	1.1
Total	100.0	100.0	100.0

All enterprises
Source: Leonardo CODE Project

The existing literature provides a number of reasons that may explain this higher preference of informal competence development practices amongst SMEs, such as lower costs and flexibility[69], easiness to integrate this training into the enterprise's everyday activities[70] or its easier focus on the employee's specific individual and work role needs[71].

Meanwhile, the Leonardo CODE survey also shows that small enterprises are more in favour of informal practices than medium sized ones (40.7% versus 30.8%, respectively) (see also Table 13), whereas a larger percentage of medium-sized enterprises argue for the equal effectiveness of both formal and informal methods in comparison to small enterprises (62.1% versus 52.8%).

This equal relevance of both formal and informal methods for competence development is also particularly suggested by both those manufacturing SMEs attributing a key importance to competence development activities and by those SMEs particularly affected by skill shortages. Interestingly also, both groups of enterprises also attribute a lower relevance to the informal training practices (see Table 14).

[69] Koch, C.L.Y & E. van Straten, Personeelsbeleid in enkele MKB-bedrijven (personnel management within a few SMEs), *Strategic study B9703*, Zoetermeer: EIM, 1997

[70] Curran, J., R. Blackburn, J. Kitching and J. North, Small firms and workforce training: some results, analysis and policy implications from a national survey. In M. Ram, D. Deakins and D. Smallbone (eds.), Small firms; enterprising futures, London. Chapman, 1997.

[71] Pohjala, P and R Vuori, Kohti kannattavaa kasvua. Kehityshankkeen suunnittelu, organisointi ja toteutus pk-yrityksen näkökulmasta (Towards profitable growth. Planning, organizing and implementation of development project from the point of view of SME), Reports of the Finnish National Workplace Development Programme 12, Helsinki, 2000.

Table 14. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base, by enterprises' assessment of the importance of competence development activities as a key element for the enterprise competitiveness

Variables	Attitude of enterprises to competence development activities		Enterprises' need to upgrade the competence and skill base of workforce	
	Key element	Not a Key element	Enterprises experiencing this need	Enterprises not experiencing this need
The formal training acquired in a course (external or internal)	5.9	3.0	6.9	4.0
The informal training and knowledge acquired on the job	35.8	59.1	34.9	43.5
Both equal	57.5	34.4	57.8	50.6
Don't Know/ No answer	0.8	3.6	0.5	1.9
TOTAL	100.0	100.0	100.0	100.0

All enterprises
Source: Leonardo CODE Project

Concerning the national differences amongst SMEs (see Table 15), the available data shows that the largest share of Austrian, Spanish and French SMEs argue in favour of the equal effectiveness of both forms of training. By way of contrast, Finnish and especially Dutch SMEs do particularly value the effectiveness of informal versus formal training practices for improving the skills and competencies of the workforce. Interestingly also, a higher than the European average percentage of Spanish and Dutch SMEs regard formal training practices as more effective (10.6% and 12.1%, respectively).

Table 15. Percentage of enterprises, according to their preference of formal/informal training practices, by country

Variables	Countries				
	AT	E	F	FIN	NL
The formal training acquired in a course (external or internal)	2.9	10.6	0.4	2.1	12.1
The informal training and knowledge acquired on the job	34.5	34.7	37.8	49.7	58.7
Both equal	58.4	54.3	60.5	47.6	27.9
Don't Know/ No answer	4.3	0.4	1.3	0.6	1.3
TOTAL	100.0	100.0	100.0	100.0	100.0

All enterprises
Source: Leonardo CODE Project

Meanwhile, and taking into account sector differences (see Table 16), the largest percentage in all the surveyed manufacturing sectors suggests that both formal

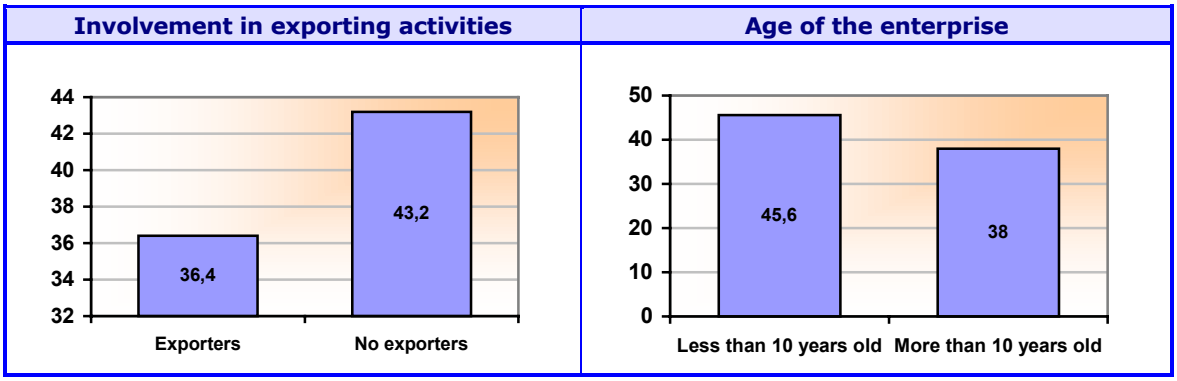
and informal practices are equally relevant for their enterprises, where the only exceptions to this are given by the textile/clothing and the wood/furniture sectors, which seem to particularly value informal competence development practices. Interestingly also, this higher preference for informal practices seems to be also more present the younger the SMEs are, as well as amongst non-exporting SMEs (see Graph 10).

Table 16. Percentage of enterprises. according to their preference of formal/informal training practices, by sector

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
The formal training acquired in a course (external or internal)	3.6	5.6	3.9	3.2	6.1	7.3	5.9
The informal training and knowledge acquired on the job	39.4	54.2	52.5	40.9	45.4	27.6	28.7
Both equal	56.0	39.0	42.5	51.8	45.9	65.1	65.4
Don't Know/ No answer	0.9	1.3	1.0	4.0	2.6	0.0	0.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

All enterprises
Source: Leonardo CODE Project

Graph 10. Percentage of enterprises that suggest that informal competence development practices are more relevant for them, by enterprises' involvement in exporting activities and age.



All enterprises
Source: Leonardo CODE Project

5.3. PRACTICES FOR INCREASING SMES' COMPETENCE LEVELS

The previous section has shown that SMEs in general and manufacturing ones in particular attribute a high importance to informal/non-formal action learning and on-the-job oriented methods integrated in daily work for developing their human resources' competencies and skills.

In this sense, small manufacturing enterprises utilise a very wide array of different practices for developing their in-house competence. Examples of these methods include visits to expos/trade fairs, in-house and external training courses, work rotation, study visits, delegation of work tasks or reading of specialised sector magazines.

The Leonardo CODE survey results fully confirm this high importance attributed by manufacturing SMEs to an array of non-formal competence development methods for upgrading their in-house competence base and skills. In this sense, and before going into detail, it is worth stressing that the Leonardo CODE survey distinguishes between external and internal-to-the-enterprise competence development practices. Thus, external-to-the-enterprise practices include those practices[72] where resources from outside the enterprise are used for developing SMEs' in-house personnel. Meanwhile, internal-to-the enterprise competence development practices[73] refer to those practices where internal resources available within the enterprise are used for developing in-house personnel's competencies.

According to the available results (see Graph 11 and Table 17), and generally speaking, the most valued practices for developing in-house competencies by manufacturing SMEs include on-the-job learning, visits to expositions/trade fairs and job/task rotation within the enterprise of the personnel (where these practices are valued 6.8, 5.8 and 5.6 on an scale from 0-'not relevant for my enterprise' to 10-'very relevant for my enterprise', respectively)[74]. Other above-5-valued com-

[72] Examples include, for instance, visits to expositions/trade fairs, attendance to courses/conferences/seminars provided by external personnel, co-operation or study visits to other enterprises, reading of external information, etc.

[73] Examples may include courses/seminars provided by own personnel, on the job learning/learning in the daily work, in-house job /task rotation, meetings amongst personnel for knowledge exchange/quality circles, etc.

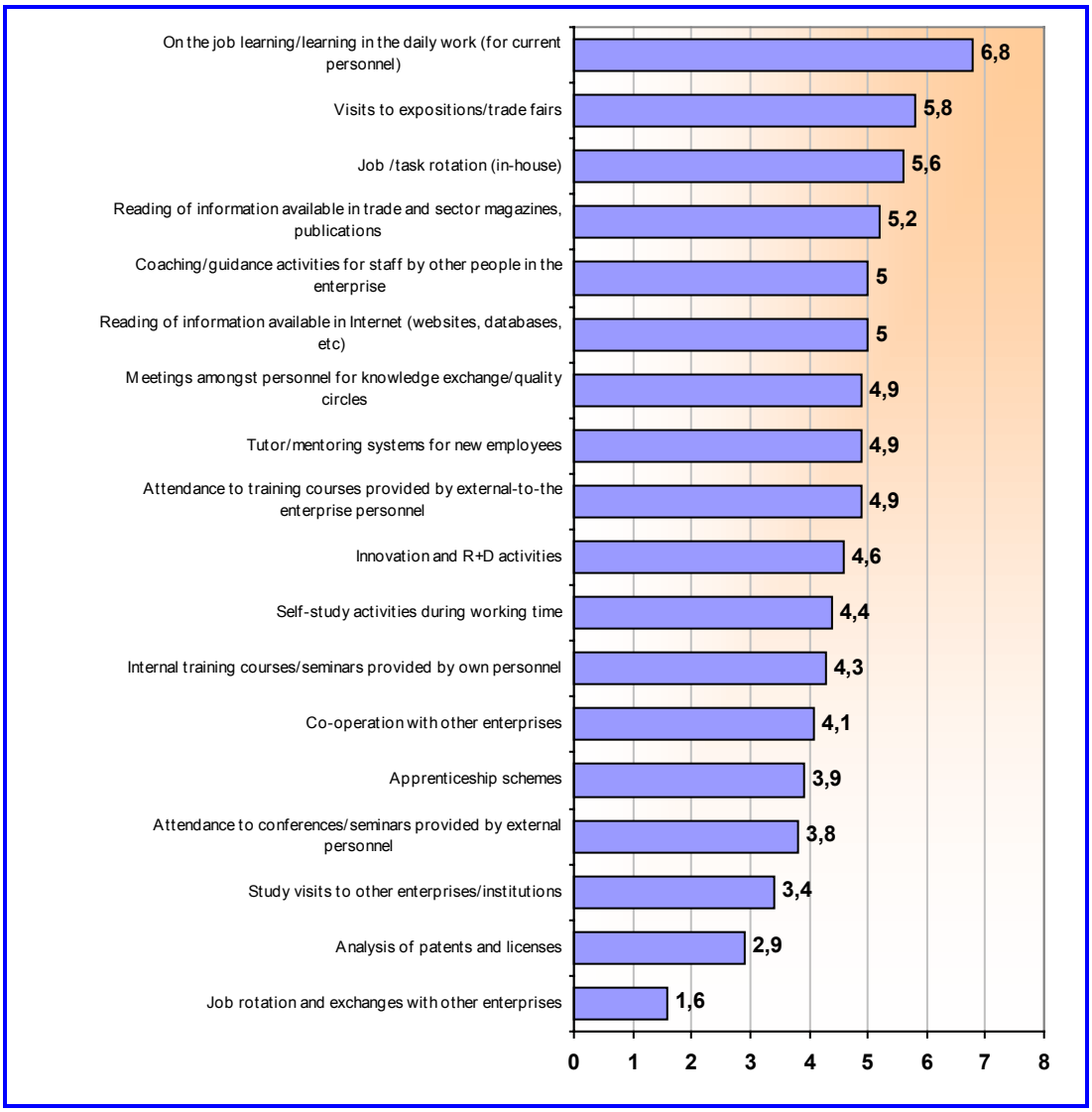
[74] These results are based on the enterprises' self assessment on the relevance of the different practices for increasing the enterprise's knowldege, competence and skills base, according to the enterprises' own experience during the last three years. These results identify those practices that, according to the enterprises, have a vital importance for this purpose.

petence development practices include reading of information available in trade and sector magazines/publications, reading of information available in Internet and, finally, coaching/guidance activities for staff by other people in the enterprise (respective marks of 5.2, 5.0 and 5.0). As it can seen, the competence development activities mostly valued by small enterprises are normally integrated in daily work.

Interestingly also, there is a group of three practices whose respective marks are very close to 5 (4.9), i.e., attendance to training courses provided by external-to-the enterprise personnel, tutor/mentoring systems for new employees and, finally, meetings amongst personnel for knowledge exchange/quality circles.

As far as the remaining suggested practices, they are generally poorly valued (less than 4.9 on the 0 to 10 scale) by manufacturing SMEs. Examples of these less valued practices include innovation/R+D activities, self-study activities during working time, internal training courses/seminars provided by own personnel, co-operation with other enterprises, apprenticeship schemes and attendance to conferences/seminars provided by external personnel (valued 4.6, 4.4, 4.3, 4.1, 3.9 and 3.8, respectively). Meanwhile, the most poorly valued practices by manufacturing SMEs include study visits to other enterprises/institutions, analysis of patents/licenses and, finally, job rotation/exchanges with other enterprises (respective ranks of 3.4, 2.9 and 1.6).

Graph 11. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base for manufacturing SMEs



Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

Available information from other information sources also confirms this SMEs' preference for certain practices. Thus, several literature[75] also stresses the high im-

[75] Examples include:

- Céreq, La formation dans les enterprises, entre réflexe et stratégie (Vocational training : between reflex and strategy), Paris, April 2004.

portance on 'on the job' training practices for SMEs, as well as to the reading of professional literature amongst SMEs76. For instance, two thirds of Austrian small enterprises (and three quarters of the companies with less than 15 employees) prefer on-the-job training activities[77]. Meanwhile, the high importance attributed to the visits to expos and trade fairs is also found in other studies[78]&[79]. In fact, enterprises in general and SMEs in particular learn from these exhibitions and trade fairs the latest technological and/or market developments in their specific branch of industry, where assisting SMEs have also the possibility to take part in different activities during a professional trade fair, such as seminars, networking activities, counselling, etc.

- Fasel, G & N Kailer, Ältere Arbeitnehmer/innen – Last oder Ressource. Leitfaden zur Entwicklung und Nutzung der Kompetenzen älterer ArbeitnehmerInnen (Older Employees – Burden or Resource. Guide for the Development and Usage of Competencies of Older Employees), WIFI, Vienna, 2001
- Henttonen, E, Osaamisen kehittäminen pk-yrityksissä: ESR-projektien hyvät käytännöt (Competence development in SMEs: Good Practices in ESF-projects), Publications of Finnish Ministry of Labour, ESF-Good Practices Serie, Edita Prima oy, Helsinki, 2002
- Kailer, N, Betriebliche Kompetenzentwicklung. Stand, Defizite, Entwicklungsperpektiven (Vocational Competence Development. Status, Deficits, Development Perspectives), in: Kailer, N, Betriebliche Kompetenzentwicklung. Praxiskonzepte und empirische Analysen. (Vocational Competence Development. Practical Concepts and Empirical Analyses), Vienna, 2001

[76] Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003

[77] Schneeberger, A & B. Kastengruber, Weiterbildung der Erwerbsbevölkerung in Österreich (Further Education of the Active Population in Austria), Institute for Research on Qualification and Training of the Austrian Economy (IBW), Vienna, 1998

[78] I.e. Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

[79] Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003

Table 17. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base, by enterprise size

Variables	Enterprise size		
	10-49	50-249	Total
External-to-the-enterprise practices			
Visits to expositions/trade fairs	5.8	6.0	5.8
Attendance to conferences/seminars provided by external personnel	3.6	4.5	3.8
Attendance to training courses provided by external-to-the enterprise personnel	4.7	5.8	4.9
Co-operation with other enterprises	4.0	4.4	4.1
Study visits to other enterprises/institutions	3.3	3.7	3.4
Job rotation and exchanges with other enterprises	1.6	1.5	1.6
Reading of information available in trade and sector magazines, publications	5.1	5.8	5.2
Reading of information available in Internet (websites, databases, etc)	4.8	5.8	5.0
Analysis of patents and licenses	2.7	3.6	2.9
Internal-to-the-enterprise practices			
Internal training courses/seminars provided by own personnel	4.0	5.4	4.3
Self-study activities during working time	4.3	4.7	4.4
On the job learning/learning in the daily work (for current personnel)	6.7	7.3	6.8
Job /task rotation (in-house)	5.6	5.8	5.6
Coaching/guidance activities for staff by other people in the enterprise	4.8	5.9	5.0
Tutor/mentoring systems for new employees	4.7	5.5	4.9
Apprenticeship schemes	3.9	4.2	3.9
Meetings amongst personnel for knowledge exchange/quality circles	4.8	5.6	4.9
Innovation and R+D activities	4.4	5.6	4.6

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

From an enterprise size perspective (see also Table 17), and before going into detail, the data show that both learning in the daily work and attendance to expos/trade fairs are the practices mostly valued both by small and medium sized enterprises. In any case, medium enterprises are able to identify a wider array of relevant practices (both external and internal) for developing their in-house competence base in comparison to the small enterprises. Thus, and whereas six practices are valued above 5 (on the 0 to 10 relevance scale) by small enterprises, this number goes up to 11 in the case of medium sized enterprises. On the other hand medium sized enterprises value each one of the suggested competence development practices on a higher rank than small enterprises, where it is possible to identify important differences in some cases (i.e. in the relevance attributed to training courses provided by external personnel). All these results suggest that

larger enterprises are able to identify a larger scope of relevant methods. Finally, medium enterprises seem to particularly value internal practices in comparison to their smaller counterparts, which probably shows that the larger the enterprises are the more resources (time/money) can devote to such practices.

Of course, 'use' issues are one of the explanatory variables behind these results. In fact, the available literature[80] on the issue fully agrees on the fact that the percentage of enterprises employing the different suggested competence development methods is positively related to the size of enterprises, where this result applies both to formal and informal practices. In any case, Austrian empirical evidence[81] shows that, in a number of cases, SMEs may invest per capita more in competence development activities than LSEs.

[80] Examples include:

- Córdova, P et al, 'La formación en las empresas españolas. Situación, tendencias y expectativas' (Training practices in Spanish businesses. Situation, trends and expectations'), CEOE (Spanish Businesses Confederation), March 2001.
- De Kok, J.M.P., L. M. Uhlaner and A.R. Thurik, Human Resource Management within small and medium-sized firms: facts and explanations, *Strategic Study B200103*, Zoetermeer: EIM, 2002.
- European Commission, Sixth Report of the European Observatory for SMEs, Brussels, 2001.
- Eurostat, Continuing Vocational Training Survey (CVTS2), Luxembourg, 2002
- Ikei & ENSR, Training Processes in SMEs: Practices, Problems and Requirements, project funded by the Leonardo Programme, Donostia-San Sebastián, 1997.
- Federation of Finnish Enterprises, Pk-yritys työantajana – Yrittäjien ja työntekijöiden mielipiteet (SME as employer – Opinions of entrepreneurs and employees), Helsinki, 2001.
- INSEE Première, Investir dans la formation continue (Investing in vocational training), Paris, February 2000.
- Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003
- Leitgeb, B, Betriebliche Weiterbildung in KMU im Spannungsfeld der österreichischen Weiterbildungspolitik (Vocational Training in SMEs in the Area of Conflict of the Austrian Policy for Further Education), Thesis at the Vienna University of Economics and Business Administration, Vienna, 1999.

[81] Kailer, N and J. Steinringer, Personalentwicklung in Klein- und Mittelbetrieben. Bedarfe und Trends in einer dynamisierten Wirtschaft (Personnel Development in Small and Medium-Sized Enterprises. Needs and Tendencies in a Dynamic Economy), Public Employment Service Austria (AMS), Vienna, 2000

Case Study 1: Computerkabel Kaminek (Computer Cable Kaminek)

The Viennese company "Computerkabel Kaminek" (Computer Cable Kaminek) is active in the field of computer integrated manufacturing. The enterprise was founded in 1985 and in 2004 it employed seven persons. Four of them were full-time employees, one worked part-time and two were marginal part-time employees. Three employees were white-collar and four were blue-collar. Four of the employees have completed upper secondary level education (two by apprenticeship training, two by school-based education), the remaining three have attended lower secondary level.

The enterprise won different awards such as the award for the women and family friendliest enterprise as well as the small enterprise award. The competence development instrument described in the following ("IQ-ABC") was nominated for the KNEWLEDGE-Prize for lifelong learning in 2004.

The owner and manager, Mr. Kaminek, regards measures for competence development as very important for his enterprise because the improvement of knowledge and qualification of the employees is considered to be the main instrument for sustainable success. Current and future skill gaps are identified both by the employer and the employees, while those regarding technical improvements of products are identified by paying attention to customers' demands.

Computerkabel Kaminek uses training-on-the-job as well as external methods for improving competencies. Regarding the latter, training provided by suppliers is considered to be most important and is mainly attended by the technicians of the company. The commercial/administrative staff attends external seminars (e.g. accounting courses) if qualification needs arise.

The two main barriers identified by the enterprise when it comes to engaging in competence development strategies are the lack of time and the lack of suitable educational training provision for their employees. As a result, Mr. Kaminek has developed a specific questionnaire game called "**IQ-ABC**". IQ stands for **I**nternal **Q**ualification and ABC stands for **A**llgemeine (general), **B**etriebliche (organisational) and "**C**ompetitive" questions and it is supposed to be transferable to other enterprises.

The general questions refer to daily life in the enterprise (e.g. How can the company be reached by public transport?), the organisational questions include company specific commercial subjects, work procedures and the course of business (e.g. Describe the shape of cable x!) and in the competitive field questions refer to the knowledge about products, customers and competition (e.g. Tell us the names of our five most important customers!). The owner and the employees (ideally all of them) play the questionnaire game and thus improve their knowledge about the enterprise. In general, the game is played once or twice a month, usually in the leisure time of the employees (but sometimes also during working hours).

An advantage of the game is its flexibility. New questions may be included very easily and old questions can be removed which is generally done by Mr. Kaminek. The individual, company specific preparation of the set of questions also enables the transfer of the most appropriate knowledge for the company. Furthermore, the game can be played as often as necessary, whenever new expertise is seen to be required. This is a very simple way to disseminate new knowledge within the enterprise. Additionally, the topics addressed and the structure of the game makes it also better accessible to persons that can be considered to be averse to traditional/formal education. Different levels of knowledge and qualification among the employees are compensated by a wide range of questions. In larger enterprises it would probably be easier to play the game with more homogenous groups of employees.

Computerkabel Kaminek considers the combination of external and internal competence development activities as very advantageous and uses the possibility of including knowledge gained by, e.g. external seminars, into the IQ-ABC.

Source: KMU FORSCHUNG AUSTRIA (Austrian Institute for SME Research)

Interestingly also, the Leonardo CODE Survey results also show that those manufacturing SMEs who believe that competence development activities are a key element for their competitiveness are able to identify a larger number of different methods (both external and internal ones) that are 'relevant' for them (score above 5) than those SMEs who do not share this view (8 methods in comparison to 2, respectively) (see Table 18). Interestingly also, this higher perception of 'relevant' competence development methods is also present amongst those SMEs who suggest a need to upgrade their workforce's competence and skill base (see also Table 18). In this sense, and whereas the manufacturing SMEs experiencing this need are able to identify 11 'relevant' tools (above 5 mark), those SMEs not experiencing this need only identify 3 tools.

Table 18. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base, by enterprises' assessment of the importance of competence development activities as a key element for the enterprise competitiveness and by need to upgrade the competence and skill base of workforce

Variables	Attitude of enterprises to competence development activities		Enterprises' need to upgrade the competence and skill base of workforce	
	Key element	Not a Key element	Enterprises experiencing this need	Enterprises not experiencing this need
External-to-the-enterprise practices				
Visits to expositions/trade fairs	5.9	4.9	6.3	5.2
Attendance to conferences/seminars provided by external personnel	3.9	3.0	4.2	3.4
Attendance to training courses provided by external-to-the enterprise personnel	4.9	4.4	5.4	4.2
Co-operation with other enterprises	4.1	3.7	4.5	3.6
Study visits to other enterprises/institutions	3.4	2.9	3.7	3.0
Job rotation and exchanges with other enterprises	1.6	1.6	1.9	1.2
Reading of information available in trade and sector magazines, publications	5.2	5.1	5.4	4.9
Reading of information available in Internet (websites, databases, etc)	5.1	4.1	5.5	4.3
Analysis of patents and licenses	2.9	2.4	3.1	2.6
Internal-to-the-enterprise practices				
Internal training courses/seminars provided by own personnel	4.4	3.5	4.2	4.3
Self-study activities during working time	4.5	3.8	5.0	3.7
On the job learning/learning in the daily work (for current personnel)	6.9	6.5	7.2	6.3
Job /task rotation (in-house)	5.8	4.5	6.1	5.0
Coaching/guidance activities for staff by other people in the enterprise	5.1	4.9	5.6	4.4
Tutor/mentoring systems for new employees	5.0	4.2	5.2	4.5
Apprenticeship schemes	3.9	4.0	4.1	3.7
Meetings amongst personnel for knowledge exchange/quality circles	5.2	3.4	5.3	4.6
Innovation and R+D activities	4.8	3.5	5.1	4.1

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

Concerning national differences in the different available practices (see Table 19), it is worth stressing the existence of important similarities between countries, although some remarkable differences can also be appreciated. In this sense, and beginning the discussion with the external-to-the-enterprise practices, the available data shows that both 'visits to expositions/trade fairs' and 'information available in trade/sector magazines/publications' are the two most important tools for

increasing the enterprises' knowledge and skill base in all the countries. The only exception to this the Finnish SMEs case, who particularly value the importance of 'co-operation with other enterprises'. By way of contrast, SMEs in all the surveyed countries suggest that 'job rotation and exchanges with other enterprises' is the practice less valued for increasing the enterprise's competence base.

Despite these similarities, it is also worth mentioning the existing differences by countries. Just to give an example, 'co-operation with other enterprises' is a very poorly valued tool for the Spanish SMEs, whereas this practice is extremely valued by the Finnish SMEs, as mentioned before[82]. These national differences on the preference of the different methods can be partially due to the fact that the understanding of what kind of instruments and methods to utilise in training and competence development are not necessarily the same in different countries[83], where this situation has got a direct influence on the decision making process within an enterprise regarding its investments in competence development activities[84]. In addition to this, in some countries enterprises are legally requested to carry out training activities[85].

[82] A similar result is found by Henttonen, E, Osaamisen kehittäminen pk-yrityksissä: ESR-projektien hyvät käytännöt (Competence development in SMEs: Good Practices in ESF-projects), Publications of Finnish Ministry of Labour, ESF-Good Practices Serie, Edita Prima oy, Helsinki, 2002

[83] AC&G and Knowledge Activating Group, A Holistic Approach to Competence Development in SMEs around Europe: Methods for Competence Development derived from EU/ADAPT Projects in Spain and Sweden, Madrid, 2000

[84] Havenga K and H. Ylinenpaa, Competence Development in Swedish, South African and Russian SMEs: A Study of Attitudes and Preferences acroos Countries, Lulea University of Technology, 1997.

[85] Since 1971, the French vocational training system encourages companies to develop formal training. Depending on their size (below or above 10 employees) enterprises have the obligation to spend a certain % of the total gross wages in vocational training.

Table 19. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base, by country

Variables	Countries				
	AT	E	F	FIN	NL
External-to-the-enterprise practices					
Visits to expositions/trade fairs	6.3	5.9	5.8	5.4	5.3
Attendance to conferences/seminars provided by external personnel	5.1	3.7	4.0	3.3	2.6
Attendance to training courses provided by external-to-the enterprise personnel	4.4	4.5	5.3	4.1	5.0
Co-operation with other enterprises	5.1	2.9	4.7	6.3	4.4
Study visits to other enterprises/institutions	3.6	2.1	4.3	4.5	3.7
Job rotation and exchanges with other enterprises	2.0	0.7	2.3	1.4	1.2
Reading of information available in trade and sector magazines, publications	6.5	4.6	5.6	5.0	5.1
Reading of information available in Internet (websites, databases, etc)	6.2	4.5	5.2	5.1	4.8
Analysis of patents and licenses	3.9	2.5	3.2	2.2	2.4
Internal-to-the-enterprise practices					
Internal training courses/seminars provided by own personnel	5.3	4.2	4.3	4.8	3.5
Self-study activities during working time	4.7	3.0	5.9	4.0	2.7
On the job learning/learning in the daily work (for current personnel)	7.4	6.2	7.3	7.5	6.1
Job /task rotation (in-house)	5.0	4.2	7.2	5.7	4.5
Coaching/guidance activities for staff by other people in the enterprise	6.6	3.9	5.6	5.6	5.9
Tutor/mentoring systems for new employees	3.6	4.0	5.8	6.9	4.2
Apprenticeship schemes	4.1	2.7	5.1	3.4	3.5
Meetings amongst personnel for knowledge exchange/quality circles	4.2	5.5	5.0	6.0	2.9
Innovation and R+D activities	5.1	4.1	5.2	5.1	3.7

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

As far as internal-to-the-enterprise practices are concerned (see also Table 19), 'on the job learning/learning in the daily work' is viewed in all the countries as the most effective tool for increasing the enterprises' competence base. Other practices that are also particularly valued by enterprises in a number of countries include 'coaching/guidance activities for staff by other people in the enterprise' (Austria and The Netherlands), 'tutor/mentoring systems for new employees' (Finland), 'meetings amongst personnel for knowledge exchange/quality circles' (Spain) and, finally, 'job /task rotation' by the French SMEs.

Interestingly also, and taking into account both external and internal practices, it is worth stressing the important differences amongst countries on the number of

'relevant' (above-5 mark) competence development practices. Thus, and whereas French, Austrian and Finnish SMEs suggest, on average, a large number of 'relevant' practices (12, 10 and 10 practices, respectively), Dutch SMEs and especially Spanish SMEs are able to point out a much lower scope of relevant measures (5 and 3, respectively).

Meanwhile, and referring to sector considerations (see Table 20), only two methods, i.e. 'visits to expos/trade fairs' and 'on the job learning/learning in the daily work', are the two competence development methods that are positively valued (rank above 5) by all SMEs, irrespectively of sector considerations. Interestingly also, it is worth stressing the important differences amongst sectors regarding the number of 'relevant' (rank above 5) tools for developing their competence base. Thus, and whereas electric/electronic, chemical/plastic and metal/machinery SMEs are able to identify 12, 9 and 8 'relevant' tools (both external and internal ones), wood/furniture, textile and paper/print SMEs are able to identify a lower number of tools.

Table 20. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base, by sector

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
External-to-the-enterprise practices							
Visits to expositions/trade fairs	5.6	6.3	5.6	5.2	5.7	5.9	6.1
Attendance to conferences/seminars provided by external personnel	4.2	3.1	3.7	3.4	4.3	3.6	4.4
Attendance to training courses provided by external-to-the enterprise personnel	5.1	3.9	4.3	4.6	5.1	5.2	5.1
Co-operation with other enterprises	4.0	2.6	3.2	4.4	3.8	4.6	5.6
Study visits to other enterprises/institutions	3.4	3.0	2.7	3.3	2.8	3.9	3.6
Job rotation and exchanges with other enterprises	1.3	0.7	1.5	1.3	1.3	2.1	1.9
Reading of information available in trade and sector magazines, publications	5.6	5.1	4.4	5.7	5.9	4.8	5.4
Reading of information available in Internet (websites, databases, etc)	4.4	3.5	4.4	5.0	6.0	5.1	6.6
Analysis of patents and licenses	2.9	2.2	2.1	2.8	3.2	3.1	3.8
Internal-to-the-enterprise practices							
Internal training courses/seminars provided by own personnel	4.3	4.1	3.2	3.9	5.0	4.4	4.3
Self-study activities during working time	4.3	3.8	3.3	3.5	4.4	5.0	5.2
On the job learning/learning in the daily work (for current personnel)	6.6	6.9	6.3	7.0	7.1	6.8	7.1
Job /task rotation (in-house)	6.1	5.5	4.9	5.4	5.0	5.8	6.4
Coaching/guidance activities for staff by other people in the enterprise	5.0	4.6	5.1	4.7	4.3	5.5	5.4
Tutor/mentoring systems for new employees	4.7	4.9	4.5	4.6	4.0	5.4	5.5
Apprenticeship schemes	3.8	3.1	3.7	3.2	3.8	4.5	4.4
Meetings amongst personnel for knowledge exchange/quality circles	4.9	4.8	4.4	4.6	5.6	4.8	5.8
Innovation and R+D activities	4.6	3.9	4.2	4.3	5.0	4.7	6.1

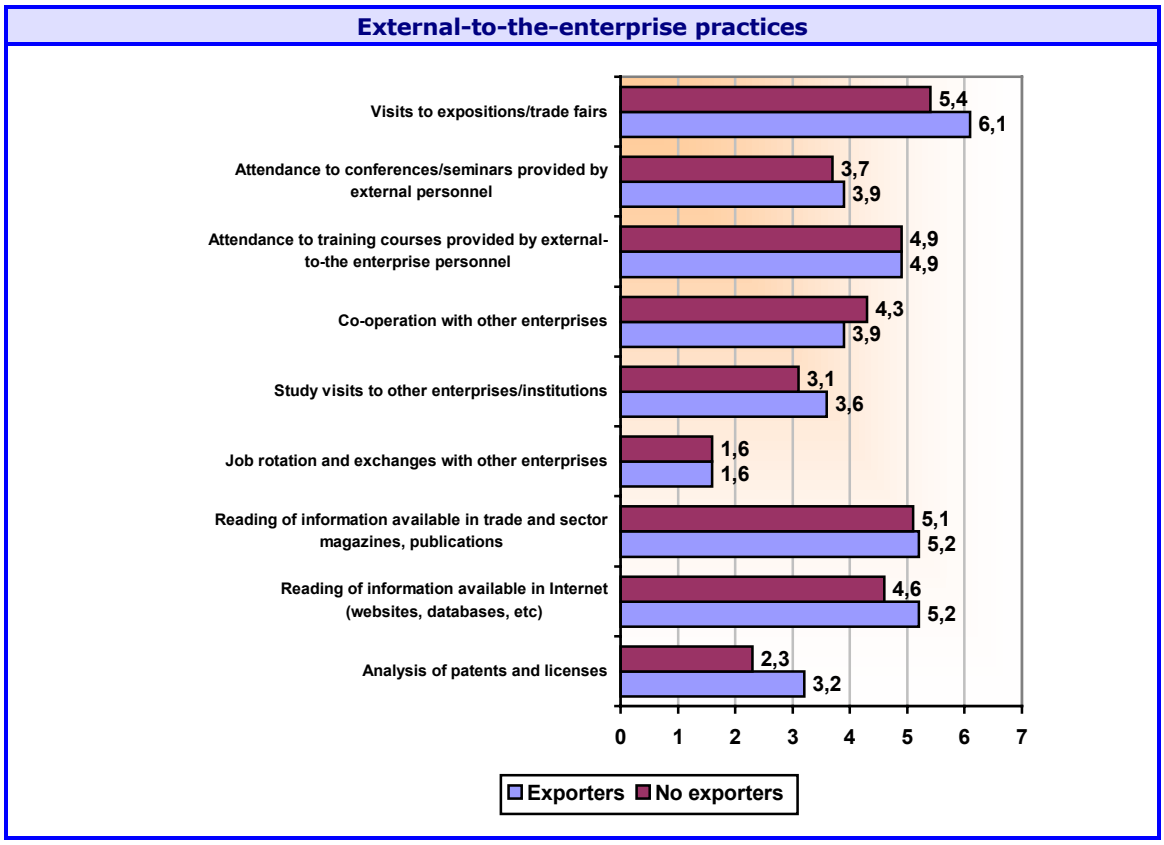
Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

In addition to these results, the Leonardo CODE survey shows two additional and interesting results that can be summarised as follows:

- On the one hand, manufacturing SMEs engaged in exporting activities are able to identify a larger range of 'relevant' (above 5 mark) methods than their non-exporting counterparts (see Graph 12). Thus, exporting SMEs are able to identify up to 9 'relevant' tools for competence development activities, whereas this figure goes down to 4 amongst those non-exporting SMEs. This important result may suggest that SMEs exposed to increased competition put

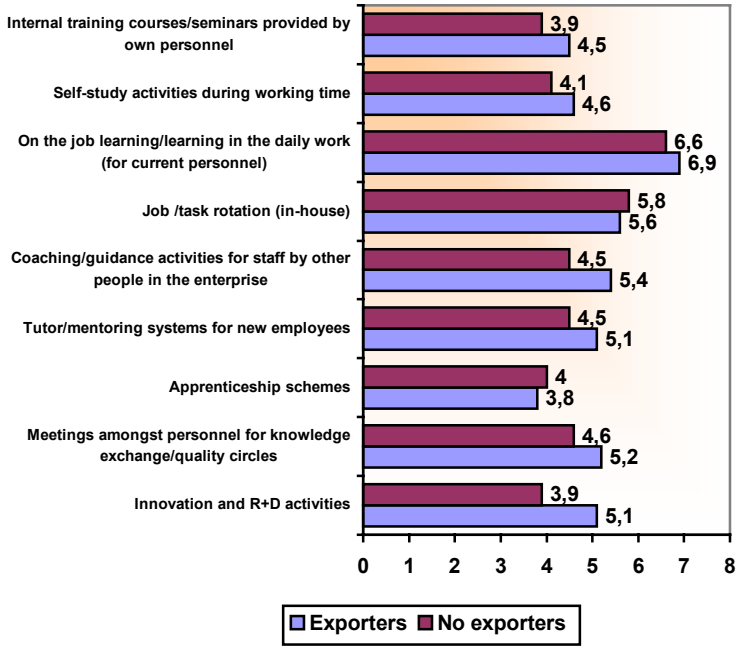
more emphasis on the development of their human resources than other enterprises[86].

Graph 12. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base, by involvement in exporting activities



[86] Gjerding, NA (ed.), 'Den fleksible virksomhed' (The Flexible Enterprise), Report No. 1 of the DISKO Project, Erhvervsudviklingsrådet, Copenhagen, 1997.

Internal-to-the-enterprise practices



Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

- On the other hand, it is also possible to identify a positive relationship between ability to identify 'relevant' tools (mark above 5) for competence development activities and economic situation (see Table 21). Thus, and whereas manufacturing SMEs currently experiencing a good or very good economic situation are able to identify up to 7 'relevant' tools this figure is only 2 amongst those SMEs experiencing a bad or very bad economic situation. This result, suggested also by other studies[87], may show that high-performing

[87] Examples include:

- Austrian Institute for Small Business Research, Betriebliche Weiterbildung in europäischen KMUs Online Datenbank ACT, Arbeitsprogramm 1998 (Further Education in European SMEs. Online Database ACT, Working programme 1998), Austrian Institute for Small Business Research, Vienna, 1997.
- Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003
- Paradas, A, Evaluer la formation dans des PME françaises (Evaluating training in French SMEs), Presses de l'Université du Quebec, 2000
- Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

SMEs are able to employ a broader menu of methods for developing in-house competence levels.

Table 21. Relevance of different practices for increasing the enterprises' knowledge, competence and skill base, by economic situation of the enterprise

Variables	Economic situation of the enterprise		
	Good or very good	Interme-diate	Bad or very bad
External-to-the-enterprise practices			
Visits to expositions/trade fairs	6.1	5.5	5.7
Attendance to conferences/seminars provided by external personnel	3.9	3.8	3.5
Attendance to training courses provided by external-to-the enterprise personnel	4.8	5.1	4.3
Co-operation with other enterprises	3.8	4.4	4.2
Study visits to other enterprises/institutions	3.2	3.7	3.3
Job rotation and exchanges with other enterprises	1.4	1.8	1.3
Reading of information available in trade and sector magazines, publications	5.4	5.1	4.2
Reading of information available in Internet (websites, databases, etc)	4.8	5.4	3.9
Analysis of patents and licenses	3.0	2.8	2.2
Internal-to-the-enterprise practices			
Internal training courses/seminars provided by own personnel	4.7	3.9	3.5
Self-study activities during working time	4.5	4.5	3.5
On the job learning/learning in the daily work (for current personnel)	7.1	6.6	6.2
Job /task rotation (in-house)	5.6	5.9	4.7
Coaching/guidance activities for staff by other people in the enterprise	5.1	5.1	4.5
Tutor/mentoring systems for new employees	5.2	4.7	3.9
Apprenticeship schemes	4.0	4.0	3.3
Meetings amongst personnel for knowledge exchange/quality circles	5.2	4.9	3.8
Innovation and R+D activities	4.8	4.6	3.9

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

5.4. SOURCES OF EXTERNAL COMPETENCE FOR MANUFACTURING SMEs

Previous section 5.3 has shown that manufacturing SMEs regard a number of external-to-the-enterprise practices, i.e. practices where resources from outside the enterprise are used for developing SMEs' in-house personnel, as relevant for them. These activities of external competence acquisition and networking can be regarded as rational methods to compensate for their lack of own, in-house knowledge and competence[88], expanding therefore the limits set by the resources the enterprises currently control[89] and allowing enterprises to have access to external competencies that may be regarded as essential for the optimal performance of the firm[90]. Following Hendry's words[91], such networks extend the boundaries of the organisation's knowledge and provide an external network of expertise where an enterprise can 'tap for ideas and advice on a wide range of subjects' (p. 191-192). In fact, some Finnish authors suggest that most of the competencies needed in industrial enterprises develop in the networking relationships and not within enterprises[92].

Generally speaking, these external sources include the recruitment of new employees or the interaction with other agents such as consultants, clients/ suppliers, business colleagues and competitors, authorities, or training centres/universities[93]. Following Håkansson's classification[94], these agents can be distinguished between vertical (basically suppliers and customers) and horizontal partners (i.e. other firms or managers, trade organisations, authorities or universities)[95].

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[88] Julien, P-A., Small Business as a Research Subject: Some Reflections on Knowledge of Small Business and Its Effects on Economic Theory in *Small Business Economics,* 5, pp. 157-166, 1993

[89] Jarillo, J.C, Entrepreneurship and Growth: The Strategic Use of External Resources, in: Journal of Business Venturing, 4, pp. 133-147, 1989.

[90] Lassinantti L & Ylinenpää H, Trainees as Change Agents in SME's –Experiences from a Program for the Development of Smaller Enterprises, Dept. of Business Administration and Social Sciences, Small Business Academy, Luleå University of Technology, Luleå, 1998

[91] Hendry, C., Arthur, M.B. and A.M. Jones, Strategy Through People - Adaptation and Learning in the Small-Medium Enterprise, London: Routledge, 1995

[92] Tikkanen, H & K Alajoutsijärvi, Kasvuyritysten osaamisen strategiat: Kehityspolkuja metalli- ja elektroniikkateollisuudesta (Competence strategies of growth companies: Paths in metal and electronics industry), MET Publishing, Helsinki, 2001

[93] Ramachandran, K. and S. Ramnarayan Entrepreneurial orientation and networking: some Indian evidence, in: Journal of Business Venturing, 8, pp. 513-524, 1993.

[94] Håkansson, H, Technological Collaboration in Industrial Networks, in: European Management Journal, 8, 3, pp. 371-379, 1990.

[95] Horizontal partners are characterised by the property of not being directly involved in the enterprise's value-processing chain.

This section will try to identify which are the most relevant external-to-the enterprise sources of knowledge and competencies for the European manufacturing SMEs, this is, the agents outside the boundaries of the enterprise where the enterprise may acquire necessary competence or capacity.

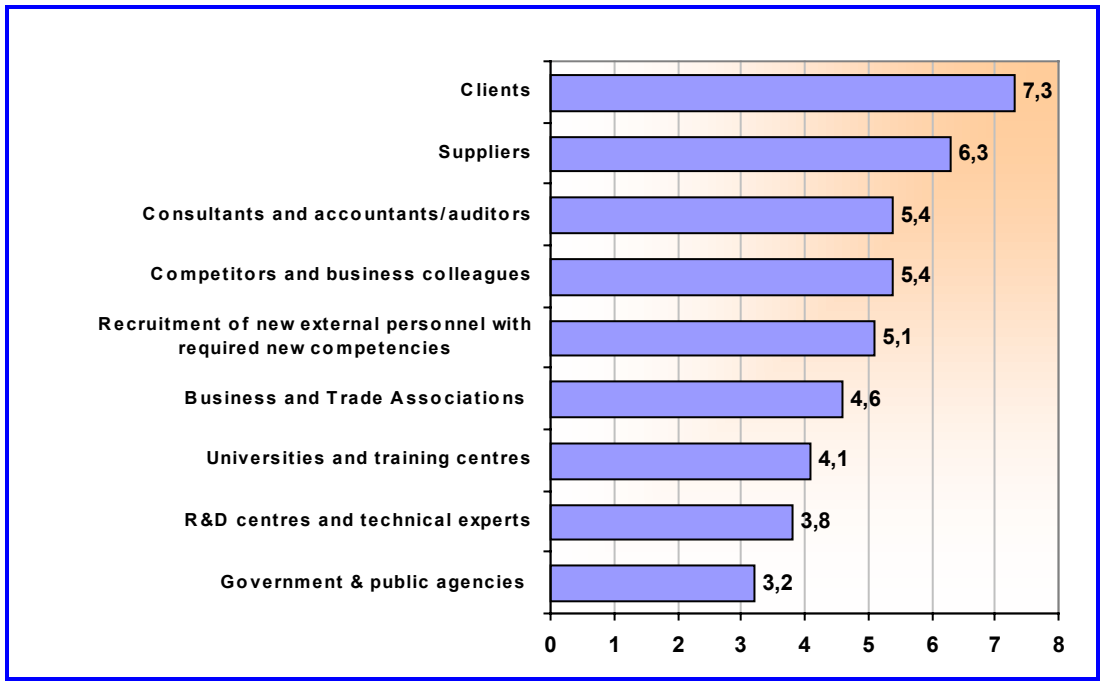
According to the results obtained form the Leonardo CODE survey (see Graph 13 and Table 22), the external actors most relevant as sources of knowledge and competencies for the manufacturing SMEs are given by the enterprise's clients and suppliers (both valued 7.3 and 6.3 on an scale from 0-'not relevant for my enterprise' to 10-'very relevant for my enterprise')[96]. This high importance of clients and suppliers is also confirmed by other pieces of research[97]&[98], which shows that the customers and suppliers operating directly in the firms' value-processing chains represent the most important and frequent partner for small manufacturing enterprises when acquiring external competence. In fact, suppliers and partners can be expected to have a higher legitimacy from the small enterprise's perspective due to their close, trustful and long-term relation.

[96] These results are based on the enterprises' self assessment on the relevance of the different actors as sources of knowledge and skills, according to the enterprises' own experience during the last three years. In fact, these results identify those actors that, according to the enterprises, have a vital importance for the enterprise's competitiveness.

[97] Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

[98] Wagner, H., Wehling M & Weingärtner M, 'Stand und Entwicklung der betrieblichen Weiterbildung in kleinen und mittleren Unternehmen' (Status Quo and competence development in SMEs) in: Schreyögg, G. and Jörg Sydow (editors) Managementforschung 5, Empirische Studien, München, 2000

Graph 13. Ranking of the different actors as sources of knowledge and competencies for the enterprises



Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

Other well-valued actors according to the Leonardo CODE survey results include competitors/business colleagues, consultants/accountants and, finally, the own recruitment of new external personnel with required new competencies[99] (respective ranks of 5.4, 5.4 and 5.1 on the same scale from 0 to 10). In this sense, this important role attributed to competitors/business colleagues is also suggested by other Finnish research studies[100], which confirm that SME entrepreneurs particularly value other entrepreneurs because they feel that another entrepreneur has the same difficulties and problems than (s)he has.

[99] A new, and especially a more qualified employee does not only represent the capacity or competence the individual per se is able to contribute with, but also the possibility to link and get access to new and other external sources of competencies.

[100] Malinen, P, Assisting Potential Fast Growth SMEs - Case Dublin Business Innovation Centre, Turku School of Economics and Business Administration, in *Business Research and Development Centre, Series B Research Reports, B 4/2001*, Turku , 2001

Table 22. Relevance for the enterprises of different actors as sources of knowledge and competencies, by enterprise size

Variables	Enterprise size		
	10-49	50-249	Total
Recruitment of new external personnel with required new competencies	4.9	6.0	5.1
Suppliers	6.4	6.2	6.3
Clients	7.2	7.6	7.3
Competitors and business colleagues	5.4	5.2	5.4
Consultants and accountants/auditors	5.4	5.2	5.4
Universities and training centres	4.0	4.4	4.1
R&D centres and technical experts	3.7	4.5	3.8
Business and Trade Associations	4.6	4.9	4.6
Government & public agencies	3.2	3.3	3.2

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

Meanwhile, and according also to the available results, other actors are not regarded as that relevant for manufacturing SMEs (they obtain a rank below 5). These actors include business/trade associations and universities/training centres (with respective ranks of 4.6 and 4.1), and especially R&D centres/technical experts and government/public agencies (ranks of 3.8 and 3.2, respectively)[101].

An enterprise size perspective (see also Table 22) shows that both clients and suppliers are, in this order, the most relevant actors for both the small and the medium sized enterprises, although clients are slightly more valued by medium sized enterprises in comparison to the suppliers case (slightly more valued by the small enterprises). Interestingly also, the recruitment of new external personnel with new competencies is particularly valued by medium-sized enterprises in comparison to small ones (6.0 versus 4.9, respectively), where this result may be influenced by both the ability of larger SMEs to attract better employees and the higher use of this possibility by larger SMEs.

[101] Of course, a further distinction between different types of knowledge (market, technological, etc) may conditionate the relative importance of the different actors as sources of relevant knowledge and competencies. This information is not possible to be obtained from the Leonardo CODE Survey results.

It is also worth mentioning that the rankings for the different suggested sources of external competence increases with the size of enterprises[102], which also reveals that larger SMEs are able to identify a larger network of relevant sources of external competence in comparison to small enterprises. This result is well explained by the existing literature, which suggests that the difficulties of acquiring external competence are higher in small than in large enterprises[103] since the smaller scale per se limits the individual enterprise's 'absorptive capacity'[104], i.e. the number of potential nodes between the firm and external competencies.

Thus, and in the prototype of a small manufacturing firm, managed by a single owner-manager without any support from a management team or even from functional specialists, this node is represented by the sole owner-manager[105]. Moreover, this owner-manager has got a lower and more limited range of competencies in different fields. Meanwhile, a medium sized enterprise (probably with an extended management team) represents an organisation where the capacity to absorb external knowledge and expertise is shared among several organisational 'nodes'. Moreover, these SMEs with a broader competence base can be regarded as a more qualified and demanding buyer of external competencies, whereas a small enterprise lacking in-house competence may also have difficulties in defining what kind of competence it needs to acquire[106].

Interstingly also, other research studies[107]&[108] complement the previous size effect, as they show that the probability of using several external sources of knowl-

[102] An exception to this is given by the external source of 'consultants and accountants/auditors', more valued by the smallest enterprises. This result could reflect the specific importance of the external accountants and auditors when they act as counsellors of the smallest enterprises' business managers.

[103] ESADE et al, Small Business Training and Competitiviness: Building Case Studies in Different European Cultural Contexts, TSER Project, Barcelona, 2001

[104] Cohen, W.M. and Levinthal, D.A, Absorptive capacity: A new perspective on learning and innovation, in Administrative Science Quarterly, 35, pp. 128-152, 1990.

[105] Julien, P-A., New Technologies and Technological Information in Small Businesses, in Journal of Business Venturing, 10, pp. 459-475, 1995.

[106] Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

[107] Lambrecht, J., Pirnay, F. & Amédodji, P., Evaluation des dispositifs wallons d'aide à la consultance [Evaluation of Walloon support for consultancy], Le Centre d'Etudes pour l'Entrepreneuriat, Le Centre de Recherche PME et d'Entrepreneuriat de l'Université de Liège, Brussels, Liège, 2003

[108] Kool, C.H.W. (editors: von Dewall, F.A. & Peek, M.J.P.M.), Ondernemers over adviseurs. Een grensoverschrijdende verkennning [Entrepreneurs about advisors. A cross- border exploration], Economical Bureau ING, Amsterdam, 2002.

edge and competence (i.e. external consultancy) is positively dependant on the qualification/level of education of the management team/general manager. Finally, it should not be forgotten that any external source of competence acquired by the SME (i.e. through a consultant or a supplier) may act as a 'broker' to other external resources, becoming a 'bridge' between two 'nodes' without connecting these nodes directly to each other[109]. Just to give an example, the recruitment of skilled or technically competent staff not only increases the SME's problem-solving capacity, but also strengthens the firm's ability to mobilise and utilise more external resources. This supposes the acquisition of a new network of external contacts and competencies that might be utilised for developing the small enterprise.

Focusing on the sector perspective (see Table 23), the Leonardo CODE survey results confirm that both clients and suppliers are the two most relevant sources for external competence, exception made of the relevant role that competitors/business colleagues play for the textile/clothing sector. Interestingly also, food/beverages, metal products/machinery and especially electric/electronics have the largest network of 'relevant' actors (i.e, actors with a rank over 5), with 5, 5 and 6 actors, respectively.

Table 23. Relevance for the enterprises of different actors as sources of knowledge and competencies, by sector

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
Recruitment of new external personnel with required new competencies	6.1	4.3	4.4	4.6	4.7	5.1	6.7
Suppliers	6.4	5.8	6.3	7.2	6.3	6.1	7.3
Clients	7.3	7.1	7.0	7.3	7.3	7.3	8.0
Competitors and business colleagues	5.4	6.4	5.3	5.4	5.2	5.1	5.6
Consultants and accountants/auditors	5.9	4.2	4.4	6.0	5.8	5.3	5.7
Universities and training centres	4.0	3.3	4.1	4.2	3.6	4.3	4.8
R&D centres and technical experts	3.8	3.6	3.9	3.7	3.7	3.6	5.0
Business and Trade Associations	5.3	4.5	4.7	4.4	4.4	4.5	4.8
Government & public agencies	3.2	2.9	3.5	3.3	3.5	3.2	3.5

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

Meanwhile, country considerations (see Table 24) confirm that clients and suppliers (in this order) are regarded as the most relevant sources of knowledge and

[109] Belotti, C, 'Teknikförnyelseprocesser i småföretag'. Diss. Swedish University of Agricultural Sciences, Uppsala, 1996, quoted by Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

competencies in the five analysed countries, without any exception (with scores in nearly all cases[110] above 7 on an scale from 0 to 10). By way of contrast, SMEs in all the surveyed EU Member States attribute a little relevance to the government/public agencies and R&D centres/technical experts as sources of knowledge and competencies, with relative scores below 5 points in all cases. Finally, it is also worth the relatively high importance attributed by French SMEs in comparison to other countriess to the recruitment of new personnel, where this result is confirmed by existing literature[111].

Table 24. Relevance for the enterprises of different actors as sources of knowledge and competencies, by country

Variables	Countries				
	AT	E	F	FIN	NL
Recruitment of new external personnel with required new competencies	5.0	4.3	6.0	5.8	3.7
Suppliers	7.1	5.3	7.0	6.2	7.0
Clients	8.4	6.8	7.4	7.4	7.9
Competitors and business colleagues	5.5	5.3	5.5	5.3	4.8
Consultants and accountants/auditors	6.2	4.1	6.3	4.9	5.3
Universities and training centres	3.5	3.1	5.2	4.3	3.1
R&D centres and technical experts	4.7	3.7	4.0	4.3	2.4
Business and Trade Associations	5.6	4.5	4.6	2.9	4.9
Government & public agencies	3.5	3.5	3.1	2.8	3.0

Results from '1'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

As far as the remaining actors are concerned, the existing differences by surveyed countries can be labelled as wide. Thus, and taking as an example the case of business/trade associations, they are relatively well appreciated by the Austrian[112] and Dutch SMEs (relative scores of 5.6 and 4.9 within the same scale from 0 to 10), whereas Spanish, French and especially Finnish SMEs poorly value their relevance (relative ranks of 4.5, 4.6 and 2.9).

[110] The only exceptions to this is given by Spanish and Finnish enterprises (for suppliers in this last case).

[111] AGEFOS PME, Perspectives 2004 : Emploi et formation dans les PME (Prospects 2004: employment and training in SMEs), Paris, October 2003.

[112] In fact, some Austrian studies [*i.e. Kailer, N, Weiterbildungsinstitute, Trainer- und Beratergruppen vor neuen Herausforderungen: Entwicklungen auf Anbieterseite. (Further Education Institutes, Trainer and Consultant Groups Being Opposed to New Challenges: Developments on the Supply Side), in: Kailer, N, Personalentwicklung in Österreich (Personnel Development in Austria), Vienna, 1995*] identify the Austrian Chamber of Commerce's Institute of Business Promotion (WIFI) to be the most important external partner as regards personnel development and further education.

It is also worth stressing the important national differences concerning the scope of actors regarded as 'relevant' by manufacturing SMEs. Thus, and whereas in France and Austria more than six actors out of the suggested nine are valued above 5 on the 0 to 10 scale, in the case of Spain and The Netherlands only three actors obtain a higher than 5 mark (four actors in the case of Finland). Both results stress the existing different historical traditions and cultural attitudes in the different countries.

In addition to these results, the Leonardo CODE survey results show a number of interesting outcomes and relationships. Thus, these results suggests that:

- Firstly, manufacturing SMEs who point out the key importance of competence development activities for their competitiveness show higher relevance indexes[113] for the different suggested sources of external competence than those SMEs not pointing out this key importance (see Table 25). This result may suggest that the former SMEs are able to identify a larger network of relevant sources of external competence in comparison to the latter ones.

Table 25. Relevance for the enterprises of different actors as sources of knowledge and competencies, by enterprises' assessment of the importance of competence development activities as a key element for the enterprise competitiveness

Variables	Attitude of enterprises to competence development activities	
	Key element	Not a Key element
Recruitment of new external personnel with required new competencies	5.4	3.4
Suppliers	6.3	6.4
Clients	7.3	7.2
Competitors and business colleagues	5.4	5.0
Consultants and accountants/auditors	5.4	5.3
Universities and training centres	4.2	3.0
R&D centres and technical experts	3.9	3.4
Business and Trade Associations	4.6	4.6
Government & public agencies	3.3	3.1

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

[113] In some cases, it is worth stressing that these differences are not very important.

- Secondly, manufacturing SMEs who are experiencing skills shortages/skills gaps show higher relevance indexes[114] for the different suggested sources of external competence than those SMEs not identifying these shortages/gaps (see Table 26). This result may suggest, as it was the case before, that the former SMEs are able to identify a larger network of relevant sources of external competence in comparison to the latter ones.

Table 26. Relevance for the enterprises of different actors as sources of knowledge and competencies, by experience of skills shortages/skills gaps

Variables	Enterprises experiencing skills shortages		Enterprises experiencing skills gaps	
	Enterprises experiencing	Enterprises not experiencing	Enterprises experiencing	Enterprises not experiencing
Recruitment of new external personnel with required new competencies	5.4	4.9	5.7	4.3
Suppliers	6.4	6.3	6.4	6.2
Clients	7.2	7.3	7.4	7.2
Competitors and business colleagues	5.5	5.2	5.5	5.1
Consultants and accountants/auditors	5.8	5.0	5.7	4.9
Universities and training centres	4.4	3.8	4.7	3.3
R&D centres and technical experts	4.1	3.6	4.3	3.2
Business and Trade Associations	4.8	4.5	4.6	4.6
Government & public agencies	3.3	3.2	3.4	3.0

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

- Thirdly, the Leonardo CODE survey results show that, generally speaking, European manufacturing SMEs showing good business results value more positively[115] the different external sources of knowledge and competence than their low performing counterparts[116]. Moreover, these high performing manufacturing SMEs are able to identify a larger network of 'relevant' (above 5 score) sources of external competence in comparison to the low performing SMEs (see Table 27). These results are also confirmed by a number of addi-

[114] In some cases, it is worth stressing that these differences are not very important.

[115] The only exception to this is given by the actor 'competitors/business colleagues'. This result is probably explained by the fact that these bad performing SMEs are particularly interested in learning from those other SMEs that are doing better than them, where this source of knowledge and competencies can be regarded as relatively simple and cheap.

[116] In the Leonardo CODE survey, enterprises were requested to indetify their current economic situation. For this purpose, five possibilities were offered to them (very good, good, intermediate, bad or very bad).

tional studies, which show that high-performing SMEs are not only more inclined to obtain more competencies from outside-the-firm (i.e. external advice and information provided by suppliers, accountants, bankers, consultants, competitors, etc)[117], but also are more market-oriented and have a better understanding of their competitors[118]. This important result suggests a positive relationship between interaction with different external sources of knowledge and business performance. In addition to this, the recruitment of new personnel is more likely to happen in enterprises benefiting from a good economic situation[119]. (Poutiainen & Vanhala 1999)

Table 27. Relevance for the enterprises of different actors as sources of knowledge and competencies, by economic situation of the enterprise

Variables	Economic situation of the enterprise		
	Good or very good	Intermediate	Bad or very bad
Recruitment of new external personnel with required new competencies	5.3	5.2	3.8
Suppliers	6.5	6.2	5.9
Clients	7.5	7.0	7.1
Competitors and business colleagues	5.5	5.0	6.3
Consultants and accountants/auditors	5.4	5.5	4.4
Universities and training centres	4.0	4.4	3.2
R&D centres and technical experts	3.7	4.1	3.2
Business and Trade Associations	5.0	4.2	4.8
Government & public agencies	3.4	3.3	2.0

Results from '0'=not relevant for my enterprise to '10'=very relevant for my enterprise
All enterprises
Source: Leonardo CODE Project

[117] Donckels, R. & Lambrecht, J, Networks and Small Business Growth: An Explanatory Model, in: Small Business Economics, number 7, pp. 273-289, 1995.
[118] Storey, D.J. and K. Keasey, R. Watson and P. Wynarczyk, The Performance of Small Firms: Profits, Jobs and Failures, London: Croom Helm, 1987.
[119] Poutiainen, MR and S Vanhala, Henkilöstön kehittäminen – avain osaamisen kartuttamiseen yrityksessä (Personnel Development – a key to increase the competence in enterprise), in: Publications of the Helsinki School of Economics, B-26, 1999.

5.5. OCCUPATIONAL GROUPS BENEFITING FROM COMPETENCE DEVELOPMENT ACTIVITIES

The previous section has shown that manufacturing SMEs invest in developing their in-house knowledge base and competencies through a variety of different training and learning methods. Some of these methods include both external-to-the-enterprise practices (where resources from outside the enterprise are used for developing SMEs' in-house personnel) and internal-to-the-enterprise practices (practices where internal resources available within the enterprise are used for developing in-house personnel's competencies).

This current section is interested in analysing what are the main occupational groups benefiting from the competence development activities carried out by the European manufacturing SMEs. In this sense, the Leonardo CODE survey results confirm that the occupational group mostly being benefited from competence development activities correspond to 'middle managers/technicians', with 67.6% and 74.4% of responses depending on the external or internal nature of the competence development activities, respectively (see Table 28).

Table 28. Percentage of enterprises, according to the occupational groups mainly benefited from enterprises' external and internal competence development activities, by enterprise size

Group categories	External activities			Internal activities		
	10-49	50-249	Total	10-49	50-249	Total
Directors and managers	66.7	68.1	67.0	32.2	25.7	31.0
Middle management, technicians	64.4	82.3	67.6	73.1	80.0	74.4
Manual workers, operators	20.0	16.1	19.3	53.3	60.9	54.7
Clerks, administrative personnel	14.0	14.7	14.1	18.4	18.6	18.4

Vertical totals may sum more than 100% as enterprises were requested to identify the two groups mostly benefited
All enterprises
Source: Leonardo CODE Project

Meanwhile, the second more benefited occupational group from competence development activities depends on the specific nature of these activities. Thus, and as far as external competence development activities are concerned, this second group corresponds to 'directors and managers', whereas 'manual workers/operators' are the second mostly benefited group when internal competence

development activities are taken into account. Other studies[120] also confirm that formal external training tends to concentrate on employees who are already qualified and enjoy relatively high professional status. In fact, French literature[121] even suggests that highly qualified/high professional status personnel is more willing to attend training activities in comparison to less qualified/lower status personnel, partially because they do not expect much of it[122]. Meanwhile, the occupational group 'clerks/administrative personnel' is the group less benefited from both external and internal activities.

The previous results suggests that small manufacturing enterprises are characterised by a strong division of labour between 'blue-collar' (manual workers/operators) and 'white-collar' staff (directors/managers, middle managers/technicians) in the contents and nature of their learning processes. Thus, 'white collars' are more oriented towards external source of competence whereas 'blue-collar' employees are more oriented towards internal sources.

This strong difference, confirmed by other studies[123]&[124], can be explained by the different roles assumed by the different occupational groups. Thus, and whereas managers/white-collar specialists are occupied in securing the firm's effectiveness in a market context by interacting with competencies outside the firm ('to do the right things'), blue-collar employees on the shop-floor level are oriented towards

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[120] Examples include:

- Hätönen, H, Osaava henkilöstö – nyt ja tulevaisuudessa (Skillful personne – now and in the future), MET Publishing, Helsinki, 1999
- Machacek, T, Der Weiterbildungsmarkt in Österreich – Marktstudie und Trendanalyse (The Market for Further Education in Austria – Market Study and Analysis of Trends). Vienna: Thesis at the Vienna University of Economics and Business Administration, 2001
- OECD, Beyond Rhetoric:Adult Learning Policies and Practices, Paris 2003
- Statistik Austria, Lebenslanges Lernen. Ergebnisse des Mikrozensus Juni 2003 (Lifelong Learning. Results of the Microcensus June 2003), Statistik Austria, Vienna, 2004
- Ylöstalo P, Työolobarometri: Lokakuu 2003 (Working conditions barometer: October 2003, Helsinki, 2003.

[121] INSEE Première, Investir dans la formation continue (Investing in vocational training), Paris, February 2000.

[122] Céreq, Aux origines de l'inégale appétence des salariés pour la formation (Disparities in interest for vocational training), in: Bref n°209, Paris, June 2004

[123] Ylinenpää H., Managing Competence Development and Acquisition in Small Manufacturing Firms, Department of Business Administration and Social Sciences, University of Technology, Luleå, 1997

[124] This result is also confirmed by another Icelandic research, i.e. Jonasson JT and JR Arnardottir, Lifelong learning Iceland report III, University of Iceland, Social Science Research Institute. Reykjavik, Iceland, November 2001.

securing efficiency by assuring internal efficiency ('how to do things right'). In this sense, it could be expected a 'trickling down' effect from top to down as far as external knowledge is concerned, in the sense that this knowledge is firstly acquired by the top people in the organisation and subsequently it is 'trickled down' to other layers in the organisation.

Case Study 2: A Finnish manufacturing company

The case company is a subcontracting workshop, which designs, markets and manufactures hydraulic cylinders and machined, welded and assembled components for machines and equipment in the metal industry. The company was founded in 1993. Currently it employs about 40 people and the turnover is about €4M.

Most of the employees (85-90 %) of the company have at least vocational basic education. The employees without vocational education belong to the oldest age group in the enterprise.

The management is committed to the competence development of the employees, the main reason being to ensure the competitiveness of the company. Another important motive is to increase the meaningfulness of the work.

Like in most SMEs, the identification of current and future skill gaps has not been very systematic in the company and skill gaps are mainly identified during the daily work. For instance, in production the identification is based on observation by superiors, whereas the skill gaps of the clerks are assessed whenever their roles and tasks change. In practice the start of a development project is often based on the contacts and initiatives of external trainers. Different kinds of surveys of skill needs and working atmosphere have also been carried out as part of the training project organised by external training and education institutes. In addition, the development needs of a new employee are always found out during the recruitment process.

Attendance to training courses organised by external training or education organisations is the main method used in the company to improve competencies. However, in the case of new employees on-the-job learning and tutor and mentor systems are the main competence improving methods.

Consultants and trainers are the main external sources of competence for the enterprise. The company has close co-operation relations with one further technical training institute and one local adult educational centre and it is a member of Steelwings, a group of businesses in the metal industry. The future challenge of the group is to learn to work jointly in the competence development of personnel.

Employees in production are those benefiting the most of competence development activities, while clerks are trained less. The development of skills and competencies of the production employees is clearly concentrated in training courses of external training and education organisations. Consultants are used in the company for improving competencies of the clerks.

The two main topic fields covered by the competence development activities in the company are widening the skill base of production workers and improving the quality. The need to continuously widen the skill base of production workers arises from the new technologies, working methods and customers.

There are some problems in documenting and disseminating the existing and new knowledge within the company, especially in the area of production. Insufficient system has been the main reason for the problems, but sometimes (not infrequently), the unwillingness of employees to share knowledge has also forbid the dissemination. The enterprise has addressed these problems and is currently trying to improve the situation with the aid of a new development project, whose aim is to introduce ICT-based

systems for storing and disseminating knowledge.

In spite of the difficulties in organising work during the training, the company management does not see any big barriers that may prevent the enterprise from engaging itself in competence development strategies.

Source: Turku School of Economics and Business Administration, Business Research and Development Centre, Small Business Institute (SBI)

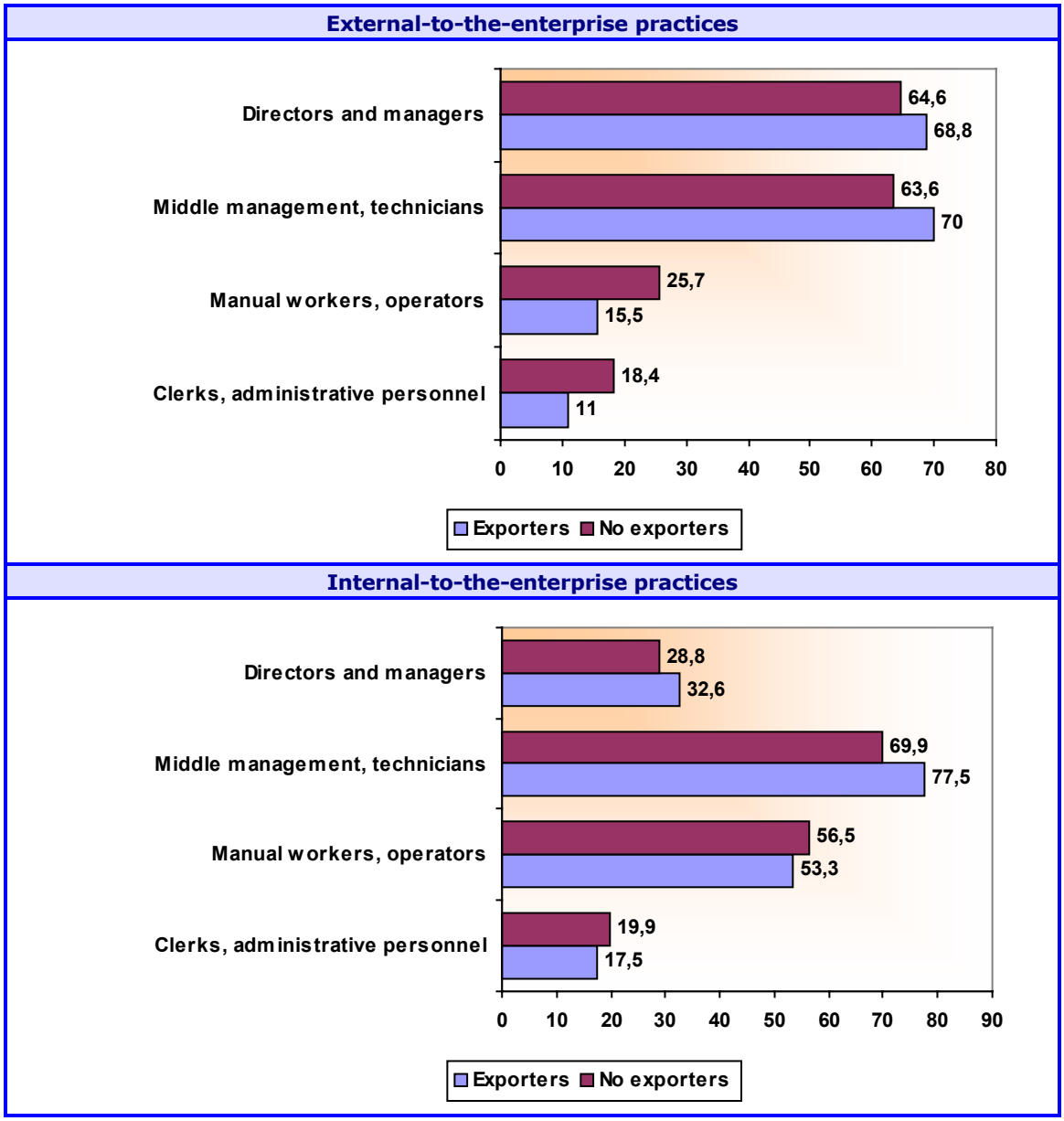
Interestingly also, enterprise size considerations (see also Table 28) show that, irrespectively of size considerations, the two mostly benefited occupational groups are 'directors and managers' and 'middle managers/technicians' in the case of external competence development activities and 'manual workers/operators' and 'middle managers/technicians' in the case of the internal ones. In any case, it is possible to identify a generally speaking positive relationship between enterprise size and percentage of enterprises investing in the different occupational groups, where this result is also confirmed by other existing studies[125]&[126].

Meanwhile, it is not possible to identify important differences in the main benefitted groups according to sector or country considerations. Interestingly enough, the Leonardo CODE Survey results point out that exporting SMEs devote a larger attention to the most highly skilled occupational groups (both 'directors/managers' and 'middle managers/technicians'), clearly to the detriment of the low skilled groups (see Graph 14).

[125] Isusi I, Competence Development in SMEs, in: 2003 Observatory of European SMEs, European Commission, Brussels, 2003

[126] Statistik Austria, Betriebliche Weiterbildung 1999 (Vocational Training 1999). Statistik Austria [Information is based on the results of the CVTS II-survey of 2001 and available from various sources], Vienna, 2003

Graph 14. Percentage of enterprises, according to the occupational groups mainly benefited from enterprises' external and internal competence development activities, by involvement in exporting activities



Vertical totals may sum more than 100% as enterprises were requested to identify the two groups mostly benefited
All enterprises
Source: Leonardo CODE Project

5.6. MAIN COMPETENCE AREAS FOR THE MANUFACTURING SMES

This section is interested in analysing what are the main areas and topics in which European manufacturing SMEs identify their main competence needs. In this sense, it is often argued that the skills currently required by enterprises are not only of a technical nature but also of an organisational and social character in order to allow staff to operate in more fluid and interactive organisational contexts[127]. In fact, and according to the interviewed experts' opinion, SMEs look for people who are both responsible and committed to the enterprise, so employees' greatest skill shortages in general stem from behavioural (i.e. motivation and willingness to change) and technological issues rather than the actual job-specific skills.

According to the Leonardo CODE Survey results (see Table 29), the areas where manufacturing SMEs manifest a higher need for upgrading their knowledge/skill base are, in this order, 'sales/marketing' and 'engineering/manufacturing' (44.5% and 36.8% of manufacturing SMEs suggest a medium or very urgent need for improvement in these areas, respectively). Meanwhile, other areas also particularly valued include 'language abilities' and 'personal skills' (i.e. communication, teamwork, pro-activity, 'savoir-être', etc), with 29.8% and 29.0% of SMEs suggesting a medium or urgent need of improvement, also respectively. By way of contrast, the areas regarded as less important by manufacturing SMEs include 'office work' and 'management/finance', since only 11.5% and 19.7% of SMEs identify a medium or urgent need for improving their skills in these two respective areas.

[127] Moniz, AB & I Kovács (study coordinators), Evolução das Qualificações e das Estruturas de Formação em Portugal (Evolution of the Qualifications and Training Structures in Portugal), published by Instituto do Emprego e Formação Profissional, Lisboa 1997

Table 29. Relevance of different competence areas according to the enterprises' identified needs, by enterprise size (Percentage of enterprises identifying for each area a medium or very urgent need)

Variables	Enterprise size		
	10-49	50-249	Total
Engineering and manufacturing	34.6	46.9	36.8
Sales and Marketing	43.9	47.0	44.5
Management, finance	20.0	18.4	19.7
ICTs, computers	22.1	28.3	23.2
Office work	11.7	10.9	11.5
Personal skills	25.2	46.1	29.0
Language abilities	27.6	40.1	29.8
Environment protection	19.9	25.7	21.0
Health and safety issues	23.2	39.7	26.1

All enterprises
Source: Leonardo CODE Project

An enterprise size perspective shows that, with the exception of these two last areas ('office work' and 'management/finance'), in the remaining areas it is possible to identify a positive relationship between enterprise size and the percentage of manufacturing SMEs suggesting a need for skill/competence improvement (see also Table 29). This is particularly the case of the issue of 'personal skills', so whereas 25.2% of the small enterprises argue for a need in this area, this percentage goes up to 46.1% amongst medium sized enterprises. From this, it can be argued that large SMEs are interested on a wider scope of issues, whereas smaller enterprises seem to primarily concentrate on topics that are 'close to their business'. This result is also confirmed by other pieces of research[128].

Meanwhile, sector considerations show (see Table 30) that, for all the surveyed manufacturing sectors with the exceptions of chemical/plastics and electric/electronics, the area of 'sales/marketing' is regarded as the most crucial one in terms of the percentage of SMEs who manifest a need for skill improvement in this area. Engineering/manufacturing issues are also a general priority amongst sec-

[128] Examples include:

- Bundesamt für Statistik, 'Weiterbildung in der Schweiz 2001. Auswertung der schweizerischen Arbeitskräfteerhebungen 1996-2000' (Further training in Switzerland 2001 on the basis of the surveys of the Swiss active population 1996-2000), Swiss Federal Office of Statistics, Berne, 2001
- EIM, Dutch SME Policy Panel, Zoetermeer, 2000
- Schneeberger, A and B. Kastengruber, Weiterbildung der Erwerbsbevölkerung in Österreich (Further Education of the Active Population in Austria), Institute for Research on Qualification and Training of the Austrian Economy (IBW), Vienna, 1998

tors. However, it is also possible to stress existing sector differences. Thus, chemical/plastics SMEs seem to be also particularly concerned with health/safety issues, where language abilities are a major concern for textile SMEs. In this sense, these sector differences are also confirmed by other studies, which show that the relative importance of various topic fields shows substantial sectoral differences[129]

Table 30. Relevance of different competence areas according to the enterprises' identified needs, by sector (Percentage of enterprises identifying for each area a medium or very urgent need)

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
Engineering and manufacturing	39.1	27.8	35.6	34.4	31.3	40.4	44.4
Sales and Marketing	54.0	57.4	35.7	51.1	21.7	47.1	45.8
Management, finance	18.1	21.0	19.0	19.9	12.2	23.6	19.5
ICTs, computers	33.8	13.0	16.8	26.6	21.0	23.8	24.1
Office work	18.5	13.6	9.9	11.1	3.7	13.6	3.7
Personal skills	44.5	14.0	20.0	28.8	27.9	26.0	48.5
Language abilities	32.2	28.6	26.7	24.9	28.2	29.4	43.3
Environment protection	18.4	17.1	13.2	13.3	26.7	24.6	27.2
Health and safety issues	35.3	18.5	17.2	19.8	30.9	26.2	30.4

All enterprises
Source: Leonardo CODE Project

As far as national differences are concerned, it is interesting to identify that the competence areas where manufacturing SMEs seem to have a higher need for upgrading their knowledge/skill base are relatively similar in all the surveyed countries (see Table 31). Thus, the area of 'sales/ marketing' is regarded as the most important area by the Austria[130], Spanish and French SMEs, and the second one by the Dutch SMEs. Meanwhile, 'engineering/manufacturing' is regarded as the most

[129] Den Boer, P and BH Hövels, Werken en leren in arbeidsorganisaties (Working and learning in labour organisations), report A187, OSA, The Hague, 2000.

[130] This high importance attributed by Austrian SMEs to the area of sales/marketing is confirmed by other studies:

- Schneeberger, A. & B. Kastengruber, Weiterbildung der Erwerbsbevölkerung in Österreich (Further Education of the Active Population in Austria), Institute for Research on Qualification and Training of the Austrian Economy (IBW), Vienna, 1998
- Statistik Austria, Betriebliche Weiterbildung 1999 (Vocational Training 1999), [Information is based on the results of the CVTS II-survey of 2001 and available from various sources], Vienna, 2003

important area by the Finnish[131] and Dutch SMEs for increasing their competence base, whereas it is the second more import for the Spanish SMEs and the third one for the Austrian SMEs[132]. Meanwhile, 'language abilities' seem to be also a concern (the second more important) for the French and Finnish SMEs, whereas 'personal skills' are also particularly mentioned by the Austrian SMEs (second ranked area). In any case, the available data also show that Finnish and Austrian SMEs are able to identify a wider array of different competence areas where they feel a need for upgrading competencies and knowledge in comparison to the other surveyed countries. Thus, there are eight and seven areas for which more than 1/3 of Austrian and Finnish SMEs, respectively, identify a need to increase their competence base, whereas this ratio is much lower amongst the Dutch and specially Spanish and French SMEs (four, two and one area, respectively).

Table 31. Relevance of different competence areas according to the enterprises' identified needs, by country (Percentage of enterprises identifying for each area a medium or very urgent need)

Variables	Countries				
	AT	E	F	FIN	NL
Engineering and manufacturing	54.5	44.2	22.6	73.2	46.9
Sales and Marketing	64.0	51.3	33.9	64.9	45.3
Management, finance	49.3	24.6	8.7	51.6	19.1
ICTs, computers	34.9	26.7	15.6	44.5	28.5
Office work	31.6	13.7	5.2	18.6	15.8
Personal skills	56.3	21.5	25.3	60.6	44.5
Language abilities	42.5	27.2	30.4	67.7	15.4
Environment protection	33.4	19.5	19.4	30.5	22.6
Health and safety issues	36.4	23.0	23.3	46.3	36.2

All enterprises
Source: Leonardo CODE Project

To end with this section, the Leonardo CODE Survey provides a number of additional interesting results:

- First, those manufacturing SMEs who manifest a need to upgrade the competence and skill base of their workforce are precisely those ones who suggest a more urgent need for improvement in all the identified competence/skill areas

[131] This result is also mentioned in Finnvera – Federation of Finnish Enterprises, Pk-yritysbarometri, kevät 2004 (SME-barometer, spring 2004), Helsinki, 2004.
[132] This importance is also present in other studies, i.e. Hirschler, S. & D. Kraly, Weiterbildung in Klein- und Mittelbetrieben. Studie in burgenländischen Betrieben (Further Education in Small and Medium Sized Enterprises. Survey of Enterprises in the Provincial State Burgenland), Thesis at the Vienna University of Economics and Business Administration, Vienna, 2003.

(see Table 32). The areas of 'sales/marketing' and engineering/manufacturing' are precisely the ones where this difference is particularly felt.

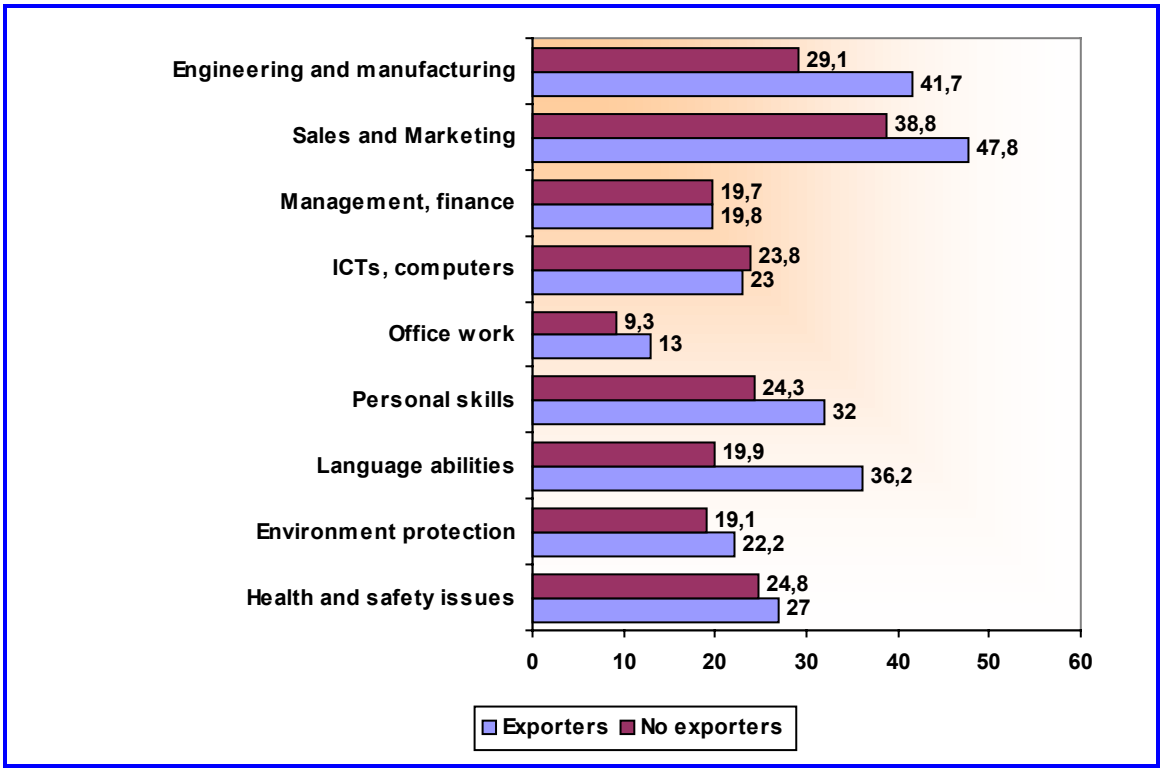
Table 32. Relevance of different competence areas according to the enterprises' identified needs, by need to upgrade the competence and skill base of workforce (Percentage of enterprises identifying for each area a medium or very urgent need)

Variables	Enterprises' need to upgrade the competence and skill base of workforce	
	Enterprises experiencing this need	Enterprises Not experiencing this need
Engineering and manufacturing	47.4	24.4
Sales and Marketing	53.2	34.3
Management, finance	21.3	17.7
ICTs, computers	25.4	20.7
Office work	11.9	11.1
Personal skills	37.4	19.2
Language abilities	34.1	24.8
Environment protection	22.4	19.3
Health and safety issues	30.9	20.6

All enterprises
Source: Leonardo CODE Project

- Secondly, those manufacturing SMEs who are exporting in international markets are also those ones who have a higher need of improving their competence base in all the suggested areas (see Graph 15). This situation is especially clear in the 'language abilities' domain (36.2% of exporting SMEs argue for a medium or urgent need of improvement in comparison to 19.9% amongst those non exporters).

Graph 15. Relevance of different competence areas according to the enterprises' identified needs, by involvement in exporting activities (Percentage of enterprises identifying for each area a medium or very urgent need)



All enterprises
Source: Leonardo CODE Project

- Finally, those manufacturing SMEs that suggest to be in a bad or very bad economic situation are precisely the ones who argue for a higher need of improvement of their competence/skill base in comparison to those well performing SMEs, and for nearly all the different suggested competence areas (see Table 33). In this sense, there are three specific areas where these differences are particularly important, that is to say, 'engineering/manufacturing', sales/marketing' and 'management/finance', that is to say, the areas particularly related with the daily life of enterprises. Just to give an example, and focusing on the 'sales/marketing' domain, whereas 37.8% of the manufacturing SMEs with a good or very good economic situation argue a need for increasing their skills in this domain, this percentage goes up to 68.5% amongst those SMEs in a bad or very bad economic situation.

Table 33. Relevance of different competence areas according to the enterprises' identified needs, by economic situation of the enterprise (Percentage of enterprises identifying for each area a medium or very urgent need)

Variables	Economic situation of the enterprise		
	Good or very good	Intermediate	Bad or very bad
Engineering and manufacturing	37.5	32.8	52.5
Sales and Marketing	37.8	47.3	68.5
Management, finance	17.2	18.1	41.7
ICTs, computers	30.4	14.4	22.1
Office work	13.5	7.9	16.7
Personal skills	30.0	26.1	37.2
Language abilities	29.1	30.8	31.4
Environment protection	19.2	21.0	32.5
Health and safety issues	25.0	26.7	31.3

All enterprises
Source: Leonardo CODE Project

Case Study 3: Microdeco

Microdeco was founded in 1963 and it currently has 97 employees. The company is located in Ermua (Basque Country) and its activity comprises high technology parts, more specifically, bar-turning and cutting of small-diameter precision parts (maximum 32 mm). Microdeco is specialised in manufacturing, particularly difficult parts, either because they involve several different operations in addition to turning (such as milling, transverse drilling, threading, cutting, etc.) or because they use materials that are difficult to machine or have very limited tolerance levels. Nevertheless, Microdeco is also qualified to make simple parts.

The company's management style is based on the principles of Total Quality and the European Excellence Model, defining five main stakeholders: employees, clients, shareholders, suppliers and the society as a whole. These five groups are key for the systematic strategic planning of the company, that always takes into account the relevant information obtained from them. It must be added that the whole process is embedded in a general policy aiming at continuous economic growth that witnesses an active role of employees in the carrying out of the mission, strategies and actions plans through their suggestions for improvement.

Concerning competence development activities, the aforementioned approach in pursue of continuous growth, improvement and total quality leads to Microdeco's commitment to providing continuous training to their employees. As a matter of fact, it is clearly stated by the company that one of their four priority goals is 'to ensure our employees receive training through our continuous training plans'. In this sense, the first formal training policy and training plans were defined back in 1996 along with a map for internal communication flows.

Building on this, all the employees work in self-managed and multidisciplinary working teams targeted at continuous improvement. These teams work closely with suppliers and clients in technological developments, a practice that is particularly relevant because it provides Microdeco with a chance to identify best practices. Additionally, operational groups have been defined to foster professional realisation of all employees in a lean-organisation context, favouring contact and information exchange among all layers.

This policy, in turn, has a direct effect on the quality of their processes and products, which have been granted with the ISO-9002 quality certificate since 1993 (renewed to new certificate ISO-9001:2000 in 2002) along with the environmental certificate ISO–14001 in 2003. Furthermore, in October 2003 Microdeco was awarded with the European Quality Award EFQM for their Corporate Social Responsibility (CSR) activities.

Source: Instituto Vasco de Estudios e Investigación (Ikei)

6. BARRIERS FOR ENTERPRISES TO ENGAGE THEMSELVES IN COMPETENCE DEVELOPMENT ACTIVITIES

6. BARRIERS FOR ENTERPRISES TO ENGAGE THEMSELVES IN COMPETENCE DEVELOPMENT ACTIVITIES

6.1. INTRODUCTION

This chapter is interested in analysing the main barriers that render difficult for manufacturing SMEs their involvement in competence development practices. For this purpose, the chapter will identify the most important barriers depending on a number of variables such as enterprise size, sector, age, involvement in exporting activities or economic situation of the enterprise. All this information will be presented in next section 6.2.

6.2. MAIN BARRIERS FOR MANUFACTURING SMEs

Previous sections of this report have shown the existence of a positive relationship between enterprise size and the assessment of different competence development practices. In other words, larger SMEs are able to attribute a higher value to the relevance of the different suggested competence development practices, whereas the smallest SMEs have difficulties to identify the relevance of the different practices. This important result is deeply linked with the obstacles that SMEs in general and especially the smallest ones suffer from in developing their competence base.

The Leonardo CODE Survey provides several interesting results concerning the main barriers that manufacturing SMEs identify for engaging themselves in activities intended to develop the knowledge, skills and competencies of their personnel. In this sense, and according to these results (see Table 34), the most important barriers are twofold:

- On the one hand, an organisational problem, this is, the fact that employees' workload makes these activities difficult to organise (a 36.8% of manufacturing SMEs argue that this barrier is a big one for them). In fact, the available SME literature suggests that the typical SME is driven by tight competition[133], short-term business pressures and lack of time considerations[134], so SMEs (especially the smallest ones) usually look for quick and easy solutions that, very often, cannot be provided. Moreover, employees on training leave have to be replaced while they are on training, where this possibility is especially difficult amongst the smallest enterprises[135].

[133] Finnvera – Federation of Finnish Enterprises, Pk-yritysbarometri, kevät 2004 (SME-barometer, spring 2004), Helsinki, 2004.

[134] Info supported by:

- CEPYME, 'Autónomos y formación: Necesidades, demandas y resultados' (Self-employed and training: Needs, demands and results), Madrid, 2003.
- Ikei & ENSR, Training Processes in SMEs: Practices, Problems and Requirements, project funded by the Leonardo Programme, Donostia-San Sebastián, 1997.
- Malinen, P, Assisting Potential Fast Growth SMEs - Case Dublin Business Innovation Centre, Turku School of Economics and Business Administration, in Business Research and Development Centre, Series B Research Reports, B 4/2001, Turku , 2001

[135] Info supported by:

- AGEFOS PME, Perspectives 2004 : Emploi et formation dans les PME (Prospects 2004: employment and training in SMEs), Paris, October 2003.
- Durchschlag, M., Personalentwicklung in Klein- und Mittelbetrieben – Theorie und Praxis (Personnel Development in Small and Medium-Sized Enterprises – Theory and Practice), Thesis at the University of Applied Sciences, Vienna, 2000

- On the other hand, manufacturing SMEs seem to be also particularly affected by the financial aspect associated with involvement in competence development activities, in the sense that available budgets are insufficient or the associated costs are too high for them (34.3% of SMEs are very affected by this problem). In this sense, it should not be forgotten that such costs include not only the direct expenses (i.e. a training course) but also the costs related to the absence of an individual employee, where these latter costs can be relatively high for small enterprises as there are few colleagues to fill the absence. This financial problem, also pointed out by SME literature[136], is aggravated if the expected economic returns are not very clear[137], which is very often the case.

[136] Info supported by:

- Bruckner, Ch., Arbeitsplatznahe Lernformen in Klein- und Mittelbetrieben. (Training Methods on the Job in SMEs), Thesis at the Karl-Franzens-University, Graz, 1996
- Curran, J., R. Blackburn, J. Kitching and J. North, Small firms and workforce training: some results, analysis and policy implications from a national survey. In M. Ram, D. Deakins and D. Smallbone (eds.), Small firms; enterprising futures, London. Chapman, 1997
- Hirschler, S. And D. Kraly, Weiterbildung in Klein- und Mittelbetrieben. Studie in burgenländischen Betrieben (Further Education in Small and Medium Sized Enterprises. Survey of Enterprises in the Provincial State Burgenland), Thesis at the Vienna University of Economics and Business Administration, Vienna, 2003
- Statistik Austria, Betriebliche Weiterbildung 1999 (Vocational Training 1999). Statistik Austria [Information is based on the results of the CVTS II-survey of 2001 and available from various sources], Vienna, 2003
- Westhead, P and DJ Storey, Management Training and Small Firm Performance: Why is the Link so Weak?, in: International Small Business Journal 14(4), pp 13-24.

[137] Storey, D.J., Understanding the Small Business Sector, Routledge, London, 1994.

Table 34. Relevance of different barriers for enterprises to engage themselves in competence development activities, by enterprise size (Percentage of enterprises identifying each barrier as a big barrier)

Variables	Enterprise size		
	10-49	50-249	Total
Insufficient budget/costs are too high	34.1	35.4	34.3
Employees' workload makes these activities difficult to organise	36.4	38.6	36.8
Too difficult for the enterprise to assess its own knowledge/skill needs	8.2	3.4	7.3
Lack of information on the possible sources of knowledge/skills	8.8	3.7	7.9
The available sources of skills and knowledge are unsatisfactory	8.1	9.8	8.4
Lack of motivation from the employees	24.8	12.9	22.7
Risk of trained employees being 'poached away' by competitors	16.9	15.5	16.7
Lack of support by the government (guidance, subsidies,...)	22.3	24.0	22.6

All enterprises
Source: Leonardo CODE Project

Other identified barriers important for SMEs include the problem of lack of motivation from the employees, as well as the lack of enough public support for these activities (in terms of guidance, subsidies, fiscal exemptions, etc), where these barriers are viewed as big ones by 22.7% and 22.6% of manufacturing SMEs. In fact, and as far as the first problem is concerned, the existing literature on the issue shows that it is very often the case that employees themselves are a key barrier to the upgrading of their competence levels for a number of reasons. Examples of these reasons include the fact that employees are unconvinced of the benefits of learning (i.e due to the low career development chances[138]&[139]), they are afraid of further responsibilities derived from these activities[140] or they have limited time (i.e., they are supposed to attend competence development activities in their leisure time which is limited due to other responsibilities, for instance, family responsibilities). Not surprisingly, Dutch research[141] underlines that that many small en-

[138] Fasel, G./Kailer, N, Ältere Arbeitnehmer/innen – Last oder Ressource. Leitfaden zur Entwicklung und Nutzung der Kompetenzen älterer ArbeitnehmerInnen. (Older Employees – Burden or Resource. Guide for the Development and Usage of Competencies of Older Employees) Vienna: Austrian Chamber of Commerce's Institute of Business Promotion (WIFI), 2001

[139] Austrian Institute for Small Business Research, Betriebliche Weiterbildung in europäischen KMUs Online Datenbank ACT, Arbeitsprogramm 1998 (Further Education in European SMEs. Online Database ACT, Working programme 1998), Austrian Institute for Small Business Research, Vienna, 1997.

[140] OECD, Beyond Rhetoric:Adult Learning Policies and Practices, Paris 2003

[141] Koch, C.L.Y & E. van Straten, Personeelsbeleid in enkele MKB-bedrijven (personnel management within a few SMEs), *Strategic study B9703*, Zoetermeer: EIM, 1997

terprise employers believe that if employees are not motivated enough to take the initiative, they should not be pushed to do so (without motivation on the part of the employees, a training course would not be effective).

Meanwhile, 16.7% of SMEs argue to be very affected by the risk that trained employees might be 'poached away' by competitors, so SMEs prefer to 'buy in' skilled employees rather than invest in developing their in-house competence base. In this sense, Leroy speaks of the 'competence- paradox'[142], which means that enterprises that invest in their employees' competence development simultaneously increase the possibility that these employees will leave the company.

Other less important barriers include the unsatisfactory nature of existing sources of skills/knowledge (so the existing supply of training and external advice is regarded as too theoretical and seldom tailored to the individual SME needs[143]), the lack of information on these sources (which may result in limited overview of the opportunities and link them to their workforce's competence needs[144]&[145]) or, finally, the fact that enterprises themselves have difficulties for assessing their own knowledge/skill needs. Only 8.4%, 7.9% and 7.3% of manufacturing SMEs are very affected by these barriers, respectively.

From an enterprise size perspective (see also Table 34), it is worth mentioning that the two most important barriers (i.e., employees' workload and financial difficulties) are equally important for both enterprise sizes. However, the available results also show that, vis-à-vis their medium-sized counterparts, small enterprises are more affected by problems derived by the lack of motivation of employees (a very important barrier for them and probably due to its small size), as well as by higher difficulties for the enterprises to assess their knowledge/skill needs and the existing sources of knowledge/skills.

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[142] Leroy Fons, 'Lang leren(d) leven. Van employability naar enjoyability' (Long-life learning. From employability to enjoyability), Over Werk–Tijdschrift van het Steunpunt WAV, pp. 44-56, March 2002.

[143] Kool, C.H.W. (editors: von Dewall, F.A. & Peek, M.J.P.M.), Ondernemers over adviseurs. Een grensoverschrijdende verkennning [Entrepreneurs about advisors. A cross- border exploration], Economical Bureau ING, Amsterdam, 2002

[144] Nooteboom, B, Firm size effects on transaction costs, in: Small Business Economics 5, pp. 283-295, 1993

[145] Kaufmann, P and I Mandl, Information Technologies and Training Practices amongst SME Managers. Austrian Report, Austrian Institute for Small Business Research, Vienna, 2001

Interestingly also, the Leonardo CODE survey results also show that the different suggested barriers are more felt as important amongst those manufacturing SMEs that are experiencing a need to upgrade the competence and skill base of their workforce than amongst those SMEs who are not experiencing this need (see Table 35). Just to give an example, the financial problem is felt as very important barrier by 39.7% of those SMEs who manifest a need to upgrade their competence base, well above the 28.1% amongst those SMEs not experiencing this need.

Table 35. Relevance of different barriers for enterprises to engage themselves in competence development activities, by need to upgrade the competence and skill base of workforce (Percentage of enterprises identifying each barrier as a big barrier)

Variables	Enterprises' need to upgrade the competence and skill base of workforce	
	Enterprises experiencing this need	Enterprises not experiencing this need
Insufficient budget/costs are too high	39.7	28.1
Employees' workload makes these activities difficult to organise	44.3	28.1
Too difficult for the enterprise to assess its own knowledge/skill needs	8.1	6.3
Lack of information on the possible sources of knowledge/skills	8.8	6.8
The available sources of skills and knowledge are unsatisfactory	9.9	6.7
Lack of motivation from the employees	25.7	19.1
Risk of trained employees being 'poached away' by competitors	18.6	14.4
Lack of support by the government (guidance, subsidies,...)	23.3	21.7

All enterprises
Source: Leonardo CODE Project

Interestingly also, country considerations (see Table 36) show that the two main identified barriers (i.e. employees' workload and financial difficulties) are regarded in all the surveyed countries as the two most important barriers, where the only exception to this corresponds to the Finnish SMEs, particularly affected by the 'poaching' problem. In any case, the barrier of employees' workload seems to be particularly relevant amongst the French, Dutch and Austrian SMEs, since more than 39% of SMEs point out this barrier as very important. Moreover, French SMEs seem to be also particularly affected by both the financial problem and the lack of employees' motivation, (48.4% and 39.7%, respectively of French SMEs say that this is a very important barrier for them). In this sense, and generally speaking,

French manufacturing SMEs seem to be particularly concerned by the different barriers in comparison to the other surveyed national SMEs.

Table 36. Relevance of different barriers for enterprises to engage themselves in competence development activities, by country (Percentage of enterprises identifying each barrier as a big barrier)

Variables	Countries				
	AT	E	F	FIN	NL
Insufficient budget/costs are too high	31.3	21.3	48.4	12.6	30.7
Employees' workload makes these activities difficult to organise	38.9	25.8	45.8	17.2	44.2
Too difficult for the enterprise to assess its own knowledge/skill needs	6.6	1.6	11.7	3.3	11.2
Lack of information on the possible sources of knowledge/skills	4.4	0.0	15.5	8.2	6.4
The available sources of skills and knowledge are unsatisfactory	8.6	1.0	15.7	6.7	4.5
Lack of motivation from the employees	27.0	8.0	39.7	8.2	4.8
Risk of trained employees being 'poached away' by competitors	23.0	6.3	25.8	19.8	9.8
Lack of support by the government (guidance, subsidies,...)	18.8	16.0	32.3	14.1	10.0

All enterprises
Source: Leonardo CODE Project

Meanwhile, sector considerations show that, once again, the two main identified barriers (i.e. employees' workload and financial difficulties) are very relevant for all manufacturing sectors (see Table 37). Interestingly also, two sectors seem to be particularly affected by the lack of public support, this is, the wood/furniture and the chemical/plastics SMEs (in both cases more than 30% of sector SMEs are very affected by this problem). Finally, lack of employees' motivation is also a relevant barrier amongst the paper/print and electric/electronics SMEs.

Table 37. Relevance of different barriers for enterprises to engage themselves in competence development activities, by sector (Percentage of enterprises identifying each barrier as a big barrier)

Variables	Countries						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
Insufficient budget/costs are too high	32.5	30.4	37.9	33.1	28.6	36.8	40.1
Employees' workload makes these activities difficult to organise	30.5	29.7	33.3	33.1	37.1	43.9	37.7
Too difficult for the enterprise to assess its own knowledge/skill needs	5.4	3.3	7.0	14.1	3.7	8.5	10.4
Lack of information on the possible sources of knowledge/skills	15.9	4.0	10.6	4.4	7.5	5.5	8.4
The available sources of skills and knowledge are unsatisfactory	11.4	3.5	19.1	8.0	8.8	3.0	15.6
Lack of motivation from the employees	22.3	19.4	21.9	32.0	12.9	24.9	26.6
Risk of trained employees being 'poached away' by competitors	16.8	7.6	20.9	8.3	13.9	23.1	10.0
Lack of support by the government (guidance, subsidies,...)	13.1	21.8	30.5	22.2	30.4	21.4	20.7

All enterprises
Source: Leonardo CODE Project

To end with this section, the Leonardo CODE survey results provide a number of interesting additional results:

- Age considerations (see Table 38) show that young enterprises (i.e. those with less than 10 years in operation) seem to be much more affected than their older counterparts (more than 10 years old) by several concrete barriers, this is, the 'financial' difficulties, the lack of employees' motivation, the 'poaching' problem and the lack of public support for the competence development activities. In this sense, the lack of employees' motivation problem seem to be particularly relevant amongst the young enterprises, so 37.1% of them identify this barrier as very important in comparison to 20.7% amongst the old enterprises.

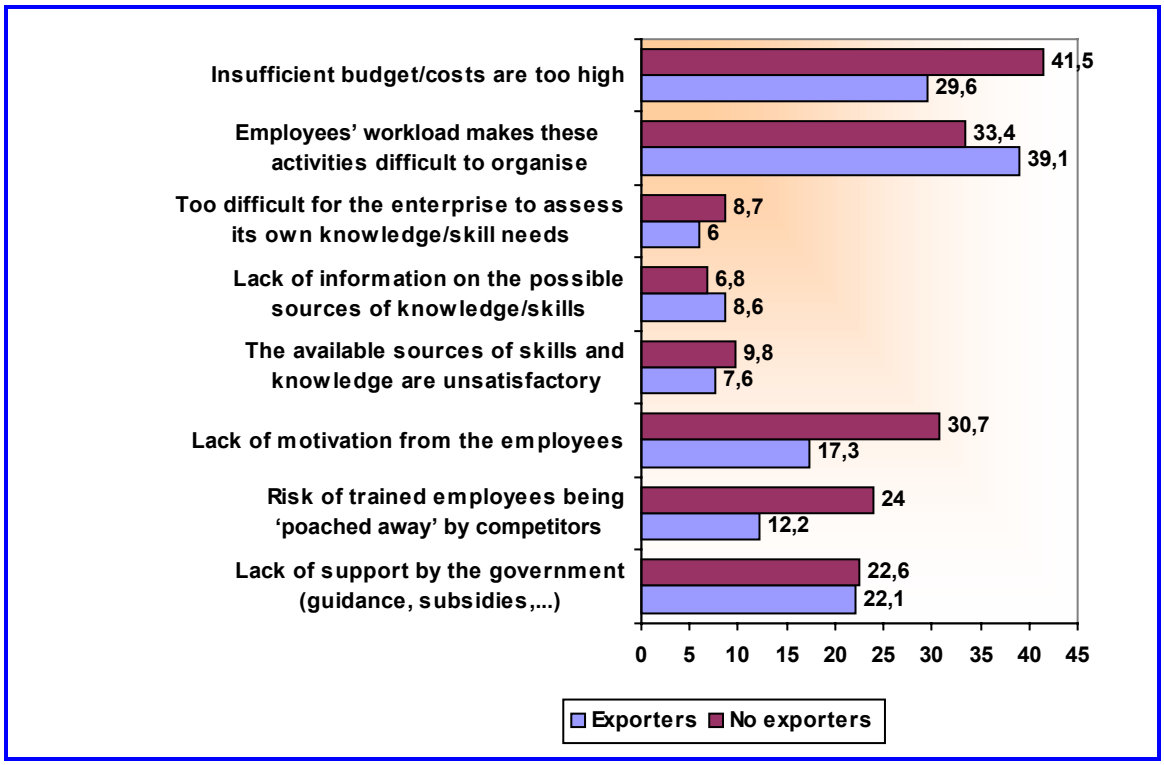
Table 38. Relevance of different barriers for enterprises to engage themselves in competence development activities, by age of the enterprise (Percentage of enterprises identifying each barrier as a big barrier)

Variables	Age of the enterprise	
	Less than 10 years	More than 10 years
Insufficient budget/costs are too high	40.8	33.5
Employees' workload makes these activities difficult to organise	28.2	38.0
Too difficult for the enterprise to assess its own knowledge/skill needs	5.1	7.6
Lack of information on the possible sources of knowledge/skills	2.3	8.6
The available sources of skills and knowledge are unsatisfactory	6.7	8.6
Lack of motivation from the employees	37.1	20.7
Risk of trained employees being 'poached away' by competitors	25.7	15.4
Lack of support by the government (guidance, subsidies,...)	30.7	21.5

All enterprises
Source: Leonardo CODE Project

- Meanwhile, and with the exceptions of 'workload' and the 'lack of information on sources of knowledge/skills' barriers, there is a larger percentage of non-exporting manufacturing SMEs assessing the different suggested barriers as very important in comparison to their exporting counterparts (see Graph 16). In any case, both 'financial' and 'workload' problems are the two most important barriers for both group of enterprises.

Graph 16. Relevance of different barriers for enterprises to engage themselves in competence development activities, by involvement in exporting activities (Percentage of enterprises identifying each barrier as a big barrier)



All enterprises
Source: Leonardo CODE Project

- Finally, and taking into account economic considerations (see Table 39), the avilable data show that 'financial' and 'workload' barriers are more important the worse the economic situation of enterprises are. Just to give an example, and focusing on the 'financial' barrier, whereas 27.8% of manufacturing SMEs with a good or very good economic situation regard this barrier as very important, this percentage goes up to 52.7% amongst those SMEs with a bad or very bad situation. Interestingly also, other barriers more felt by SMEs in bad situation include the 'poaching' and the 'lack of public support' problems.

Table 39. Relevance of different barriers for enterprises to engage themselves in competence development activities, by economic situation of the enterprise (Percentage of enterprises identifying each barrier as a big barrier)

Variables	Economic situation of the enterprise		
	Good or very good	Intermediate	Bad or very bad
Insufficient budget/costs are too high	27.8	38.2	52.7
Employees' workload makes these activities difficult to organise	35.3	36.2	50.8
Too difficult for the enterprise to assess its own knowledge/skill needs	6.8	7.3	6.7
Lack of information on the possible sources of knowledge/skills	8.2	7.6	7.8
The available sources of skills and knowledge are unsatisfactory	10.8	5.9	5.8
Lack of motivation from the employees	17.8	30.6	12.6
Risk of trained employees being 'poached away' by competitors	15.0	17.9	21.5
Lack of support by the government (guidance, subsidies,...)	19.7	24.4	28.9

All enterprises
Source: Leonardo CODE Project

7. COMPETENCE UTILISATION AMONGST SMEs

7. COMPETENCE UTILISATION AMONGST SMEs

7.1. INTRODUCTION

Chapter 3 has shown that one of the stages of the Nordhaug's 'Competence Chain Model' refers to the issue of 'competence utilisation'. 'Competence utilisation' can be defined as the way in which an enterprise (an organisation) makes use of the knowledge existing within it and that stems from the organisational, personal and cultural values of the enterprise[146]. Such organisational competence is therefore created, disseminated, shared and managed within the enterprise.

Organisational competence is not the same as individual competence. In fact, individual competence can be regarded as a necessary but not a sufficient condition for organisational competence[147], in the sense that all learning takes place inside individual human heads[148]. Meanwhile, a learning organisation has to be built in a way fostering individual learning processes, so a rigid hierarchy, very strict division of labour, an authoritarian leadership, routine work, a bad company atmosphere or a lacking corporate culture can be seen as barriers for organisational learning[149]. Additionally, a high level of individual competence does not automatically result in a high level of organisational competence, i.e., shared mental models within the organisation[150] that result in routines and collective knowledge shared by members of the enterprise. For this purpose, an optimal degree of organisational competence requires a transfer mechanism (either formal or informal) that facilitates interplay between individual and the organisation's frameworks and routines. In fact, some authors stress that a shared interpretation of reality is essential in the construction of meanings concerning work within an enterprise[151].

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[146] Ruiz, J. et al, 'Conocimiento explícito en PYMES' (Explicit knowledge in SMEs), 11th National ACEDE Congress, Zaragoza, 2001.

[147] Mabey, C. and Salaman, G, Strategic Human Resource Management. Oxford: Blackwell Publishers, 1995

[148] Teece, D.J., Rumelt, R., Dosi, G. and S. Winter, Understanding corporate coherence - Theory and evidence, in Journal of Economic Behaviour and Organization, 23, pp. 1-3, 1994.

[149] Freundlinger, A, Lernende Organisationen als Voraussetzung für lebensbegleitendes Lernen (Learning Organisations as Pre-Condition for Life-Long-Learning), in: Institute for Research on Qualification and Training of the Austrian Economy, Lebensbegleitendes Lernen (Life-Long-Learning), Vienna, 1997.

[150] Kim, D. K "The link between individual and organizational learning." Sloan Management Review, Vol. 35, No. 1, 1993

[151] Kevätsalo, K, K. Ekström and T. Eteläaho, Verkottuva työpaikka ja osaamisen kehittäminen (Networking workplace and competence development), Tietopalvelu Käyttötieto Oy, 2001

Nonaka and Konno[152] have distinguished two main types of knowledge, this is, tacit and explicit knowledge. According to these authors, explicit knowledge can be expressed in words and numbers and shared in the form of data, scientific formulae, specifications, manuals, and the like. Meanwhile, tacit knowledge is highly personal and hard to formalise, involving subjective insights, intuitions and hunches. Having in mind this distinction, explicit knowledge can be easily transmitted between individuals formally and systematically whereas tacit knowledge is more difficult to communicate or share with others. Therefore, tacit knowledge can be an important source of sustained competitive advantage for enterprises, since it is difficult to be imitated by competitors[153].

Competence utilisation implies a process by which both individual and collective knowledge is made explicit, so that it can be 'stored' within the organisation and 'shared' between the employees and other people interacting with the enterprise. Its goal is to generate easy-to-codify knowledge that may be transformed into organisational routines[154]. This process, carried out at an organisational level and in a continuous and dynamic way, requires from enterprises to have the adequate tools[155].

This chapter will try to give an answer to two main questions: i) on the one hand, what tools do manufacturing SMEs use for formalising and making explicit their in-house knowledge?; ii) on the other hand, to what extent manufacturing SMEs diffuse their in-house knowledge within the organisation and its members?.

For answering the first question, section 7.2 will look into the degree of formalisation of the available in-house knowledge within the manufacturing SMEs. For this purpose, information will be provided on the presence of both formal management tools and formal human resources management tools within the manufacturing SMEs. Meanwhile, section 7.3 will deal with the degree of diffusion of the in-house

[152] Nonaka, I. and Konno, N, The Concept of "Ba": Building a Foundation for Knowledge Creation. California Management Review, 40, 3, 1998
[153] Lado, AA and MC Wilson, Human resource systems and sustained competitive advantage: a competency based perspective, in: Academy of Management Review 19, p. 699-727, 1994.
[154] Ruiz, J. et al, 'Aprendizaje organizacional en PYMES' (Organisational learning in SMEs), 11th National ACEDE Congress, Zaragoza, 2001.
[155] Mayr, Ch and R Fischer-Colbrie, Wissensmanagement – Die Ressource Wissen als Erfolgsfaktor für Klein- und Mittelunternehmen im deutschsprachigen Raum (Knowledge Management – The Resource Knowledge as a Factor of Success in Small and Medium Sized Enterprises in the German-Speaking Region), Thesis at the Leopold-Franzens-University Innsbruck, 2002

knowledge within the manufacturing SMEs, where attention will be paid to the SMEs' self-assessment on this issue, as well as to the SMEs' preference of formal/informal tools for disseminating relevant knowledge and information within their organisations. Finally, this section will end with an analysis on the presence and characterisation within SMEs of databases for storing and diffusing relevant knowledge for the organisation.

It is worth mentioning that these issues will be looked into from different perspectives, such as business size, country or sector differences, presence of exporting activities, economic situation, etc.

7.2. FORMALISATION OF IN-HOUSE KNOWLEDGE WITHIN THE MANUFACTURING SMEs

7.2.1. Presence of formal management tools

This section is interested in analysing the presence of formal management tools within manufacturing SMEs. In this sense, the Leonardo CODE Survey identifies six examples of this kind of tools, namely, (i) formal organisation chart(s), (ii) formal strategic plan(s), (iii) written manual(s) describing the main tasks and activities of each working post, (iv) written manual(s) describing the productive standards and routines, (v) quality management systems and, finally, (vi) presence of ISO certifications. All these tools may help to link knowledge and its management with the improvement of some of the business processes, facilitating also that individual knowledge is turned into organisational one.

According to the available results, European manufacturing SMEs have got, on average, 3.4 tools out of the proposed six, although this presence is dependant on the concrete tools (see Table 40). Thus, up to 66.6% and 66.0% of SMEs report to have quality management systems and written manual(s) describing the main tasks and activities of each working post, respectively. Meanwhile, 62.4% of SMEs suggest having a formal organisation chart, 56.8% report having written manual(s) describing the productive standards and routines. Finally, formalised strategic plans are present in 48.2% of SMEs, whereas 40.5% of manufacturing SMEs argue to have an ISO certification(s).

Table 40. Percentage of enterprises with formalised management tools, by enterprise size

Variables	Enterprise size		
	10-49	50-249	Total
A formal organisation chart	57.8	83.7	62.4
A formal strategic plan	45.1	62.6	48.2
Written manual(s) describing the main tasks and activities of each working post	63.3	78.6	66.0
Written manual(s) describing the productive standards and routines	54.0	69.4	56.8
Quality management systems	63.4	81.5	66.6
ISO certifications (9000, 14000, others)	36.9	57.2	40.5
Average number of tools	3.2	4.3	3.4

All enterprises
Source: Leonardo CODE Project

An enterprise size perspective shows a positive relationship between the presence of the different tools and the size of enterprises (see also Table 40). Thus, and whereas small enterprises have got on average 3.2 tools (out of the six defined), medium sized enterprises have got 4.3 tools. Referring to the different suggested tools, this positive size effect is present for all the tools. Just to mention a few examples, 57.8% of small enterprises argue to have a formal organisation chart, where this share is as high as 83.7% amongst the medium sized enterprises. Meanwhile, ISO certifications are present in 36.9% of manufacturing small enterprises, well below their presence amongst their medium sized counterparts (57.2%). Interestingly enough, other research studies[156]&[157] find also a positive relationship between business size and the number of organisational learning practices and tools.

Concerning existing differences by surveyed EU Member States (see Table 41), the available data suggest significant disparities by countries. To start with, the highest presence of this kind of tools corresponds to the Dutch manufacturing SMEs (3.9 tools on average out of six), followed by the Finnish and Austrian SMEs (3.6 tools in both cases). Meanwhile, Spanish and especially French SMEs are characterised by a lower presence of these tools (3.5 and 3.2 out of six, respectively).

[156] Ruiz, J. et al, 'Conocimiento explícito en PYMES' (Explicit knowledge in SMEs), 11th National ACEDE Congress, Zaragoza, 2001.
[157] Uit Beijerse, RP, Kennismanagement in het midden- en kleinbedrijf (Knowledge management within SMEs), Strategic study B9707, EIM, Zoetermeer, 1997.

Meanwhile, an in-depth analysis of the different existing tools also shows important differences amongst countries. Thus, more than 66% and 65% of the Finnish and Austrian SMEs argue to have a formal strategic plan in contrast to only 35.1% of the French SMEs. On the other hand, the presence of written manuals describing main tasks/activities of each working post or the productive standards/routines are particularly present amongst the Dutch and the Finnish SMEs (more than 70% of SMEs argue to have them in both cases[158]), well above the French and Spanish cases. Interestingly, and contrarily to the remaining management tools, French SMEs seem to be particularly concerned with quality management systems, as 70.7% of French SMEs argue to have one, well above the Spanish case (61.1% of SMEs).

Table 41. Percentage of enterprises with formalised management tools, by country

Variables	Countries				
	AT	E	F	FIN	NL
A formal organisation chart	62.8	76.0	51.8	61.3	58.7
A formal strategic plan	65.0	56.1	35.1	66.0	58.9
Written manual(s) describing the main tasks and activities of each working post	59.7	61.9	65.1	73.0	87.5
Written manual(s) describing the productive standards and routines	66.6	52.3	53.6	72.5	75.5
Quality management systems	66.7	61.1	70.7	66.2	69.4
ISO certifications (9000, 14000, others)	40.1	43.1	40.4	25.4	37.6
Average number of tools	3.6	3.5	3.2	3.6	3.9

All enterprises
Source: Leonardo CODE Project

Meanwhile, and concerning the presence of formal organisation chart(s), this tool is particularly present within the Spanish SMEs (76.0% of them argue to have it), well above their French and Dutch counterparts (51.8% and 58.7% suggest to have it, respectively). Spanish manufacturing SMEs also show the largest presence of ISO certifications, as 43.1% of national SMEs argue to be certified in comparison to 25.4% and 37.6% amongst the Finnish and Dutch SMEs, respectively.

[158] This result is probably explained by the fact that collective labour agreements in these countries describe in a very precise way each working post, so SMEs have got at their disposal this tool in an easily accesible way.

Case Study 4: Les Laboratoires Brothier (Brothier Laboratories)

Brothier is an independent French pharmaceutical company, created in 1949. Its headquarters are situated in Nanterre (Ile-de-France Region) and the production and research site in Fontevraud l'Abbaye (Centre Region). Brothier detains a specific know-how in hemostasis and tissue repair, its main products being hemostatic wound dressings and ropes, bandage and hemostatic powder, motion sickness medicine and cough medicine.

Apart from producing, Brothier carries out clinical research and develops its own processes, creating most of its production equipment. Its products are distributed worldwide through local partnerships and it is an expanding enterprise, in terms of innovation, sales and production.

The staff of Brothier (75 people) is composed of operators, technicians, engineers, doctors, pharmacists and sales representatives. The firm develops a very active human resources policy, aiming at a continuous integration of all women and men into a team in order to enlarge the collective competence of the enterprise. The competence development effort of the firm is based on both external and internal training courses as well as technological and marketing awareness and development of scientific partnerships at both French and European levels.

Brothier developed steadily since the early 90's, introducing new materials and technologies. Besides the firm hired new employees with high qualifications or diplomas and also had young employees trained through external courses on long periods (1 to 4 years). At the same time, the oldest employees with fewer diplomas successfully adapted to the new technologies but progressively resented the distortions of salaries and professional positions between them and the younger employees. A series of interviews with the concerned employees revealed that the real problem was the lack of recognition and valorisation of the experience, knowledge and know-how of the older employees, which in turn, led to their dissatisfaction and loss of motivation.

The industrial management envisaged solutions, especially training courses for the employees. Brothier got in touch with the IMT[159] institute, which proposed an alternative to classic formal training: the acquisition of CQP ("certificat de qualification professionnelle"). The CQP certificates officially recognise the mastering of specific professional qualifications by employees who have low or no diploma but an important professional experience instead. The 6 different CQP concerning the pharmaceutical industry have been defined by the LEEM (French professional union of the pharmaceutical industries, formerly named SNIP) and the trade unions. The Ministry of Health also acknowledges these CQP. Apart from the satisfaction of the person who gets a 'diploma' and whose professional competence is acknowledged, the CQP is a useful certificate if an employee has to search for a job in another company.

The success in Brothier resulted from the following:

- The management's interest and support, through the dedication of a specific budget and the allowance of training time, which implied hiring apprentices in order to complete the staff.
- The acceptance of the project by the concerned employees and their engagement in it with motivation. In this sense, 80 % of the concerned people were interested and all 8 operators involved into the project.
- On a technical level, an engineer from IMT devoted time to understand Brothier's productive processes. Then, together with the responsible persons, he defined (accordingly with the CQP requirements) various knowledge modules, needed competencies, unit values and evaluation grids. Each employee has been evaluated for his/her specific competencies; personal training programmes have been defined and a 2 year long training programme resulted, completed in 2002. 90% of this programme was developed on the company premises, during working hours.

The training programme being completed, employees were evaluated once again and they all obtained their CQP certificate. The industrial management acknowledged such achievement with financial bonuses or wage rises.

Source: Citia

[159] IMT ("Institut des Métiers et Technologies des produits de santé"; "Health products technologies and jobs institute") is located in the "Centre" Region. IMT delivers initial vocational education, directed at pharmaceutical industry jobs, for operators and technicians. Its diplomas are recognized by the Ministry of health. Besides, IMT delivers training sessions, in the framework of external-to-the-firms training or of continued vocational training.

As far as the existing sector differences are concerned, the available data shows important differences in the presence of these formal management tools (see Table 42). In this respect, the highest average presence of these tools corresponds to the electric/electronics, chemical/plastics and metal/machinery SMEs (4.1, 4.0 and 3.9 management tools out of six, respectively). By way of contrast, wood/furniture and textile SMEs have the lowest presence of these formal management tools (2.1 and 2.5 tools out of six, also respectively). Generally speaking, these differences can be also appreciated when the different suggested management tools are analysed (see also Table 42).

Table 42. Percentage of enterprises with formalised management tools, by sector

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
A formal organisation chart	52.5	44.6	43.9	69.2	73.5	69.3	76.8
A formal strategic plan	40.9	44.1	41.5	42.9	54.9	54.9	44.1
Written manual(s) describing the main tasks and activities of each working post	70.5	49.8	34.7	58.6	74.8	75.7	79.6
Written manual(s) describing the productive standards and routines	66.7	38.8	22.8	52.3	69.9	61.4	75.7
Quality management systems	71.8	57.0	50.0	53.5	68.0	73.4	81.1
ISO certifications (9000, 14000, others)	39.0	19.2	16.0	20.5	55.8	52.7	55.6
Average number of tools	3.4	2.5	2.1	3.0	4.0	3.9	4.1

All enterprises
Source: Leonardo CODE Project

The Leonardo CODE Survey provides also a number of interesting additional results. They can be summarised as follows:

- Firstly, old enterprises (i.e. those that are more than 10 years old) have got a higher presence of formal management tools in comparison to 'young' enterprises (less than 10 years old) (see Table 43). Thus, and whereas young manufacturing SMEs have got on average 2.9 tools, old SMEs argue to possess 3.5 tools out of the six defined). This positive age effect can be identified for all the suggested management tools.

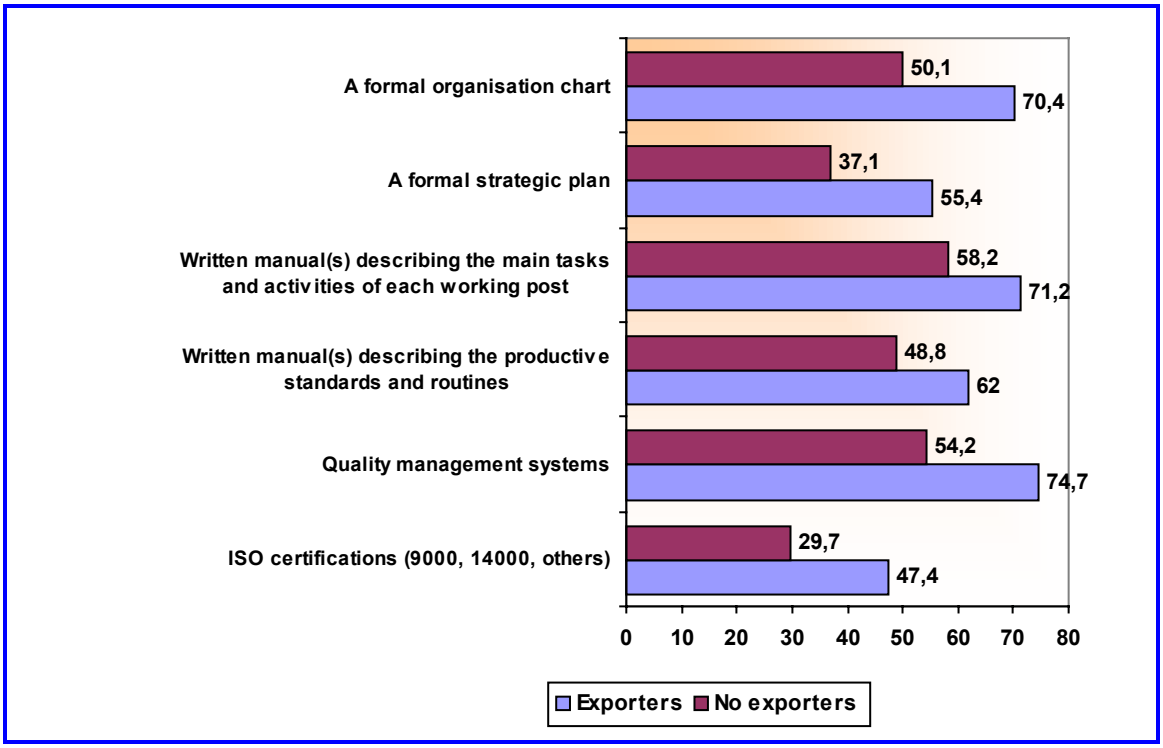
Table 43. Percentage of enterprises with formalised management tools, by age of the enterprise

Variables	Age of the enterprise	
	Less than 10 years	More than 10 years
A formal organisation chart	45.0	64.8
A formal strategic plan	36.3	49.9
Written manual(s) describing the main tasks and activities of each working post	64.0	66.3
Written manual(s) describing the productive standards and routines	53.0	57.3
Quality management systems	58.8	67.7
ISO certifications (9000, 14000, others)	30.6	41.9
Average number of tools	2.9	3.5

All enterprises
Source: Leonardo CODE Project

- Secondly, involvement in exporting activities seems to have also a positive effect in the presence of formal management tools. Thus, exporting manufacturing SMEs have got on average 3.8 formal management tools, well above the figure for the non-exporting SMEs (2.8 tools out of six). This higher presence of these tools amongst the exporting SMEs can be also appreciated for all the different suggested tools (see Graph 17). Just to give an example, ISO certifications are present in 47.4% of the exporting SMEs, well above the ratio amongst the non-exporting SMEs, 29.7%.

Graph 17. Percentage of enterprises with formalised management tools, by involvement in exporting activities



All enterprises
Source: Leonardo CODE Project

- Finally, the enterprises' economic situation seems to be also related with the in-house presence of formal management tools (see Table 44). Thus, and whereas SMEs suggesting to be in a good or very good economic situation argue to have on average 3.6 tools out of six, SMEs in a bad or very bad economic situation have 2.9 tools (3.3 tools amongst those SMEs suggesting an intermediate economic situation). Once again, and just in order to give an example, 45.5% of SMEs in good or very good economic situation say to have an ISO certification, whereas this percentage is much lower amongst those SMEs in bad situation (specifically, 24.6%).

Table 44. Percentage of enterprises with formalised management tools, by economic situation of the enterprise

Variables	Economic situation of the enterprise		
	Good or very good	Interme-diate	Bad or very bad
A formal organisation chart	63.3	62.8	57.3
A formal strategic plan	50.2	47.0	42.9
Written manual(s) describing the main tasks and activi-ties of each working post	68.3	65.2	59.5
Written manual(s) describing the productive standards and routines	62.3	52.1	48.1
Quality management systems	67.1	68.3	59.2
ISO certifications (9000, 14000, others)	45.5	38.0	24.6
Average number of tools	3.6	3.3	2.9

All enterprises
Source: Leonardo CODE Project

7.2.2. Presence of formal human resources management tools

This section is interested in looking into the presence of formal tools for the management of human resources within the manufacturing SMEs. In this sense, the Leonardo CODE Survey distinguishes six possible tools, that is to say, (i) defined process(es) for the recruitment and selection of personnel, (ii) formal system(s) for evaluating the personnel performance, (iii) formal system(s) for evaluating the personnel training needs, (iv) written training plan(s), (v) system(s) for collecting employees' suggestions related to work issues and, finally, (vi) meetings to inform employees on changes/developments about job/enterprise[160]. All these tools help to manage and develop people, who are the ones that possess the experience and know-how.

According to the available information, European manufacturing SMEs have got on average 2.7 tools out of the six defined for managing their human resources (see Table 45), where this presence is very different according to the different tools. Thus, up to 80.0% of manufacturing SMEs carry out meetings to inform employees on changes/developments about their job/enterprise, whereas 50.7% of SMEs have system(s) for collecting employees' suggestions related to work issues.

[160] Please notice that a number of these tools (i.e. defined process(es) for the recruitment and selection of personnel, formal system(s) for evaluating the personnel training needs and written training plan(s)) have already been analysed when discussing point 4.4. on formal management tools related to competence planning.

Meanwhile, and as far as the remaining tools are concerned, they are present, generally speaking, in 3 out of 10 enterprises.

Table 45. Percentage of enterprises with formalised human resources management tools, by enterprise size

Variables	Enterprise size		
	10-49	50-249	Total
Defined process(es) for the recruitment and selection of personnel	31.5	46.3	34.1
Formal system(s) for evaluating the personnel performance	30.5	51.9	34.4
Formal system(s) for evaluating the personnel training needs	28.8	50.6	32.7
A written training plan	29.8	68.8	36.9
System(s) for collecting employees' suggestions related to work issues	48.2	61.9	50.7
Meetings to inform employees on relevant changes/developments	80.5	78.0	80.0
Average number of tools	2.5	3.6	2.7

All enterprises
Source: Leonardo CODE Project

Equally to the management tools case, the presence of formal tools for the management of human resources is clearly dependent on the size of enterprises. In this sense, and whereas small enterprises have got on average 2.5 tools out of six, medium sized enterprises have got 3.6 tools (see also Table 45). The situation by concrete tools also shows this positive size effect, where the only exception to this general rule is given by the practice of meeting with employees for information purposes (where this practice is equally carried out by both small and medium sized enterprises). Thus, and just to give some examples, written training plans are present in 29.8% of the small enterprises in comparison to 68.8% amongst the medium sized ones. Meanwhile, 30.5% of the small enterprises report to have formal system(s) for evaluating the personnel performance, whereas this tool is present in 51.9% of the medium sized enterprises

Interestingly also, the Leonardo CODE Survey results also underline the existence of important differences amongst sectors and countries in the presence of these formal tools for the management of human resources. Thus, and as far as sector considerations are concerned (see Table 46), the sectors where the presence of these tools for managing human resources is the highest correspond to electric/electronics, metal/machinery and chemical/plastics (3.2, 3.1 and 2.9 tools on average), equally to the situation with the general management tools. By way of

contrast, wood/furniture and textile SMEs have the lowest presence of these formal management tools (1.8 tools each of them).

Table 46. Percentage of enterprises with formalised human resources management tools, by sector

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
Defined process(es) for the recruitment and selection of personnel	37.1	25.7	18.0	31.9	34.1	38.3	50.8
Formal system(s) for evaluating the personnel performance	28.6	12.9	19.8	26.2	39.7	47.1	43.5
Formal system(s) for evaluating the personnel training needs	37.7	17.4	12.6	24.9	34.2	41.9	43.1
A written training plan	38.2	25.0	14.4	39.4	46.3	40.3	50.0
System(s) for collecting employees' suggestions related to work issues	42.5	34.6	34.9	54.4	58.5	60.5	51.3
Meetings to inform employees on relevant changes/developments	80.4	69.3	77.9	80.8	79.0	84.4	79.2
Average number of tools	2.6	1.8	1.8	2.6	2.9	3.1	3.2

All enterprises
Source: Leonardo CODE Project

Meanwhile, and referring to national differences in the presence of formalised human resources management tools, once again it is possible to identify important disparities (see Table 47). Thus, and to start with, Dutch, Finnish and French SMEs have the highest presence of these tools (3.1, 3.0 and 2.9 tools out of six, respectively), whereas Austrian and especially Spanish SMEs have got the lowest presence (2.7 and 2.3 tools, also respectively).

Table 47. Percentage of enterprises with formalised human resources management tools, by country

Variables	Countries				
	AT	E	F	FIN	NL
Defined process(es) for the recruitment and selection of personnel	38.2	30.3	35.0	35.0	41.6
Formal system(s) for evaluating the personnel performance	39.4	24.9	36.3	45.5	54.2
Formal system(s) for evaluating the personnel training needs	33.8	21.1	40.8	38.6	37.9
A written training plan	31.3	27.9	45.7	29.4	38.0
System(s) for collecting employees' sugges-tions related to work issues	49.2	46.5	53.5	57.6	52.6
Meetings to inform employees on relevant changes/developments	77.1	80.6	77.6	98.8	84.0
Average number of tools	2.7	2.3	2.9	3.0	3.1

All enterprises
Source: Leonardo CODE Project

Meanwhile, and referring to the situation for each one of the defined tools (see also Table 47), both defined process(es) for the recruitment and selection of personnel and formal system(s) for evaluating the personnel performance are particularly present amongst the Dutch SMEs (41.6% and 54.2%, respectively), well above the situation amongst Spanish SMEs (30.3% and 24.9%, also respectively). Meanwhile, up to 40.8%, 45.7% and 53.5% of French SMEs have formal system(s) for evaluating the personnel training needs, have a written training plan[161] or have system(s) for collecting employees' suggestions related to work issues, respectively, where this situation seems to be particularly positive in comparison to the Spanish case (21.1%, 27.9% and 46.5%, also respectively). Finally, the practice of organising meetings to inform employees of changes/developments affecting their jobs and the enterprise is well extended in all the surveyed countries[162], although this practice seems to be particularly extended amongst the Finnish SMEs (98.8% of them confess to follow this practice).

Interestingly also, the Leonardo CODE Survey provides a number of additional results that can be underlined:

[161] There is a legal obligation in France to have a written training plan amongst those enterprises with 50 or more employees. Formal systems to evaluate personnel training needs can also be an input for this written training plan

[162] In some countries (i.e. France and The Netherlands), there is a legal obligation to inform employees at least once a year on any changes within the company).

- Firstly, the available data show that those SMEs who argue on the key importance of competence development activities for their competitiveness use more formal human resources management tools than those SMEs who do not stress this key importance (see Table 48), where this higher presence applies to all the different suggested tools.

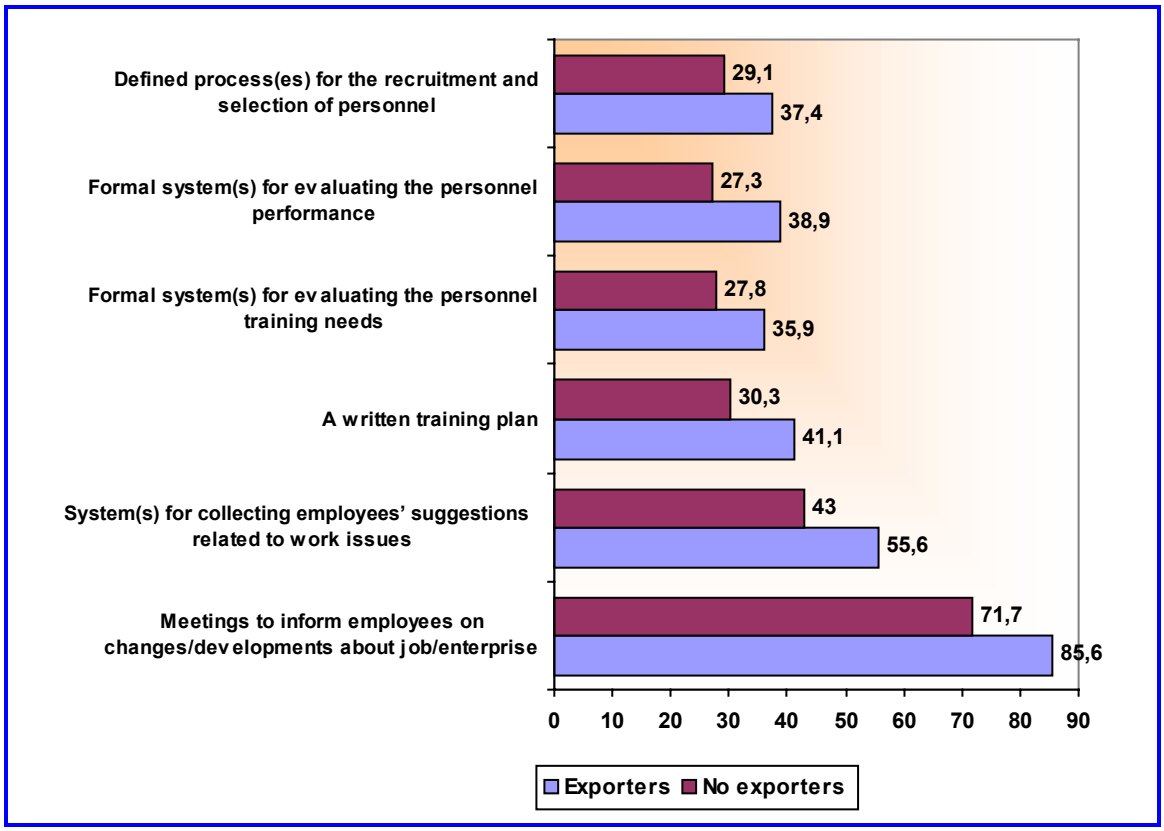
Table 48. Percentage of enterprises with formalised human resources management tools, by enterprises' assessment of the importance of competence development activities as a key element for the enterprise competitiveness

Variables	Attitude of enterprises to competence development activities	
	Key element	Not a Key element
Defined process(es) for the recruitment and selection of personnel	35.1	27.3
Formal system(s) for evaluating the personnel performance	35.4	27.7
Formal system(s) for evaluating the personnel training needs	34.3	22.4
A written training plan	38.2	27.9
System(s) for collecting employees' suggestions related to work issues	51.1	47.5
Meetings to inform employees on relevant changes/developments	82.0	67.3
Average number of tools	2.8	2.2

All enterprises
Source: Leonardo CODE Project

- Secondly, exporting SMEs have got on average a higher presence of formal tools for the management of their human resources (3.8 tools out of six amongst the exporting SMEs in comparison to 2.8 tools amongst the non exporting ones). This higher presence applies to all the different suggested formal tools (see Graph 18). Thus, and just to give an example, 27.3% of non-exporting small enterprises have got formal system(s) for evaluating the personnel performance, whereas this tool is present amongst 38.9% of their exporting counterparts.

Graph 18. Percentage of enterprises with formalised human resources management tools, by involvement in exporting activities



All enterprises
Source: Leonardo CODE Project

- Finally, the economic situation of the enterprises seems to be related with the presence of formal tools for the management of human resources, in the sense that those manufacturing SMEs arguing to benefit from a good or very good economic situation make more use of these tools in comparison to those SMEs in a bad or very bad situation (see Table 49).

Table 49. Percentage of enterprises with formalised human resources management tools, by economic situation of the enterprise

Variables	Economic situation of the enterprise		
	Good or very good	Interme-diate	Bad or very bad
Defined process(es) for the recruitment and selection of personnel	39.7	29.7	23.1
Formal system(s) for evaluating the personnel performance	35.3	35.7	24.8
Formal system(s) for evaluating the personnel training needs	30.2	38.4	23.0
A written training plan	32.6	43.7	32.5
System(s) for collecting employees' suggestions related to work issues	53.3	48.3	46.7
Meetings to inform employees on relevant changes/developments	85.9	74.7	72.2
Average number of tools	2.8	2.7	2.2

All enterprises
Source: Leonardo CODE Project

7.3. DIFFUSION OF THE IN-HOUSE KNOWLEDGE WITHIN THE MANUFACTURING SMES

7.3.1. Degree of dissemination of knowledge within SMEs

The Leonardo CODE Survey provides also information on the self-assessment that manufacturing SMEs make themselves of their own degree of dissemination of relevant knowledge and information through the organisation. According to the available information, manufacturing SMEs have a relatively high opinion of their dissemination of knowledge and information, so they rate this degree of dissemination on a 6.6 grade on a scale from 0-'very badly disseminated'- to 10 –'very well disseminated'- (see Table 50). Of course, important barriers to an effective dissemination of knowledge within SMEs include the time pressures coming from daily work, the relunctance of some individuals (both managers and employees) to share information with other colleagues or, finally, the lack of practices and tools in this domain (see previous section's results).

Interestingly enough, the smallest enterprises, those SMEs with no exporting activities and the 'young' ones (those SMEs with less than 10 years old) are precisely the ones who higher rate this self-assessment in comparison to their counterparts. Thus, small enterprises self-rate this degree on a 6.7 rank in comparison to 5.9

amongst the medium sized enterprises[163]. This result is probably explained by the fact that in the smallest enterprises it is often easier to disseminate knowledge due to flat organisation and familiarity of each employee. When the number of employees increases it is more challenging to manage the dissemination of knowledge between different divisions, occupational groups and hierarchic levels.

Meanwhile, young enterprises rate this dissemination as high as 7.3 in comparison to 6.5 amongst the old enterprises. Interestingly also, the SMEs who argue to benefit from a better economic situation also rate their dissemination of information and knowledge on a higher scale than those SMEs in not so positive situation (6.7 and 6.1, respectively). In any case, and as it can be seen, this self-assessment is high in the sense that it is above 6 in all cases.

[163] This result is not very surprising bearing in mind that in small enterprises information has to be shared to a more limited number of persons in the enterprise.

Table 50. Assessment of the degree of dissemination of relevant knowledge and information through the organisation, by enterprise size, sector, country, age of the enterprise, presence of exporting activities and economic situation of the enterprise

Variables	Assessment
Enterprise size	
✓ 10-49	6.7
✓ 50-249	5.9
✓ Total	6.6
Sector	
✓ Food/Beverage	5.7
✓ Textile/Shoes	7.0
✓ Wood/Furniture	7.6
✓ Paper/Print	6.7
✓ Chemical/Plastics	6.7
✓ Metal/Machinery	6.2
✓ Electric/Electronics	7.2
Country	
✓ Austria	6.6
✓ Spain	7.3
✓ France	6.1
✓ Finland	5.4
✓ The Netherlands	6.5
Age of the enterprise	
✓ Less than 10 years old	7.3
✓ More than 10 years old	6.5
Presence of exporting activities	
✓ Yes	6.5
✓ No	6.7
Economic situation of the enterprise	
✓ Good or very good	6.7
✓ Intermediate	6.4
✓ Bad or very bad	6.1

Results from '0'= Very badly disseminated to '10'=Very well disseminated
All enterprises
Source: Leonardo CODE Project

As far as the existing sector and national differences are concerned, and beginning by the sector differences, it is interesting to notice that some of the sectors who have their best self-opinion on the degree of knowledge/information dissemination (i.e. wood/furniture and textile/shoes) are precisely the ones that show the lowest presence of formal tools both for general management purposes and for the management of human resources (see previous section). In any case, all sectors (with the only exception of food/beverage) rate this degree of dissemination higher than 6-mark.

Meanwhile, country considerations show that manufacturing SMEs in all the surveyed EU Member States rate their degree of dissemination of knowledge and in-

formation through the organisation as good (mark above 6), with the only exception of Finland (5.4). It is precisely the Spanish and Austrian SMEs who have the most positive view on this issue (with respective marks of 7.3 and 6.6, respectively), followed by the Dutch and French SMEs (6.5 and 6.1 on the same 0 to 10 scale, respectively).

7.3.2. SMEs' preference of formal/informal tools for disseminating relevant knowledge and information within the organisation

The previous results can be further explained when additional considerations on the dissemination issue are taken into account. In this respect, the Leonardo CODE Survey provides information on the manufacturing SMEs' preference for formal (i.e. Intranets, manuals, internal newsletters, etc) versus informal (i.e. informal meetings, daily inteaction with people, etc) tools for disseminating relevant knowledge and information within the organisation.

According to the available information, the largest share of manufacturing SMEs believe that informal mechanisms are more useful for disseminating relevant knowledge and information within their organisation in comparison to the percentage of SMEs who are more in favour of formal tools (48.3% versus 9.7% of SMEs, respectively), whereas a significant share of SMEs (41.8%) also believe that both formal and informal are equally useful for them (see Table 51).

Table 51. Preference of enterprises of formal versus informal tools for disseminating relevant knowledge and information within the organisation, by enterprise size

Variables	Enterprise size		
	10-49	50-249	Total
Formal mechanisms	9.8	9.0	9.7
Informal mechanisms	49.9	41.0	48.3
Both equal	40.2	49.2	41.8
Don't Know/ No answer	0.1	0.9	0.2
Total	100.0	100.0	100.0

All enterprises
Source: Leonardo CODE Project

Interestingly enough, enterprise size considerations show that small enterprises seem to be more in favour of informal mechanisms in comparison to their medium sized counterparts (see also Table 51). Just to give some data, and whereas

49.9% of small enterprises prefer informal mechanisms, this share is smaller amongst the medium sized enterprises, 41.0%. Meanwhile, the percentage of enterprises in favour of formal mechanisms is very similar in both cases (9.8% and 9.0%, respectively). Interestingly also, medium sized enterprises argue more than their small counterparts on the equal usefulness of both formal and informal methods for disseminating relevant knowledge and information within their organisations. Therefore, informal communication is more appreciated by the smaller enterprises[164], probably due to the fact that there are fewer departments and it is easier to diseminate and manage existing knowledge within the organisation (i.e. through face-to-face practices such as informal meetings, daily interaction, etc). By way of contrast, informal knowledge dissemination becomes more complicated in medium-sized enterprises since as firms grow so do the organisation layers and even physical 'barriers' such as separated offices and distance, which may well hinder internal spontaneous communication. All this responds to the higher degree of specialisation of larger firms, that leads to a need to define specific procedures geared towards knowledge management and, consequently, a somewhat greater degree of formalisation.

Concerning sector considerations, there are a number of sectors (i.e. food/beverage, wood/furniture, chemical/plastics and metal/machinery) for which the largest percentage of SMEs argues for the usefulness of informal methods for disseminating relevant knowledge and information within their organisation. Meanwhile, in the remaining sectors (i.e. textile/shoes, paper/print and electric/electronics), the largest percentage of SMEs argue for the equal usefulness of both formal and informal methods for disseminating purposes. Interestingly also, the sectors which show the largest percentage of SMEs in favour of formal methods, this is, metal/machinery and electric/electronics, are precisely the two sectors with the highest presence of formal tools for management purposes[165].

[164] A similar result was also found by Ahtinen, T, S Martimo and O Nieminen, Knowledge management pienissä ja keskikokoisissa yrityksissä (Knowledge management in SMEs), Publications of Lifelong Learning Institute Dipoli of Helsinki University of Technology, INFO 1995:5, Helsinki, 1999

[165] See results of previous section.

Table 52. Preference of enterprises of formal versus informal tools for disseminating relevant knowledge and information within the organisation, by sector

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
Formal mechanisms	7.1	9.2	3.6	12.3	2.2	14.8	13.8
Informal mechanisms	54.9	44.7	62.3	39.3	52.5	44.0	39.4
Both equal	38.0	45.7	34.0	47.9	44.5	41.0	46.9
Don't Know/ No answer	0.0	0.5	0.0	0.5	0.8	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

All enterprises
Source: Leonardo CODE Project

As far as national differences are concerned, the preference of informal versus formal tools for disseminating relevant knowledge and information within the organisation is well extended in all the surveyed countries (see Table 53). This is especially the situation in The Netherlands and to a lesser extent in Spain (70.5% and 51.6% of them argue for the importance of informal mechanisms, respectively). The only exception to this is given by France, where up to 49.0% of the French SMEs argue that both formal and informal are equally relevant, in comparison to 40.7% of national SMEs who prefer informal mechanisms. In any case, and in addition to the French case, it is worth underlining that a very large percentage of Austrian and Finnish manufacturing SMEs also argue for the equal importance of both formal and informal tools (42.5% and 45.5% of the national responses, respectively).

Table 53. Preference of enterprises of formal versus informal tools for disseminating relevant knowledge and information within the organisation, by country

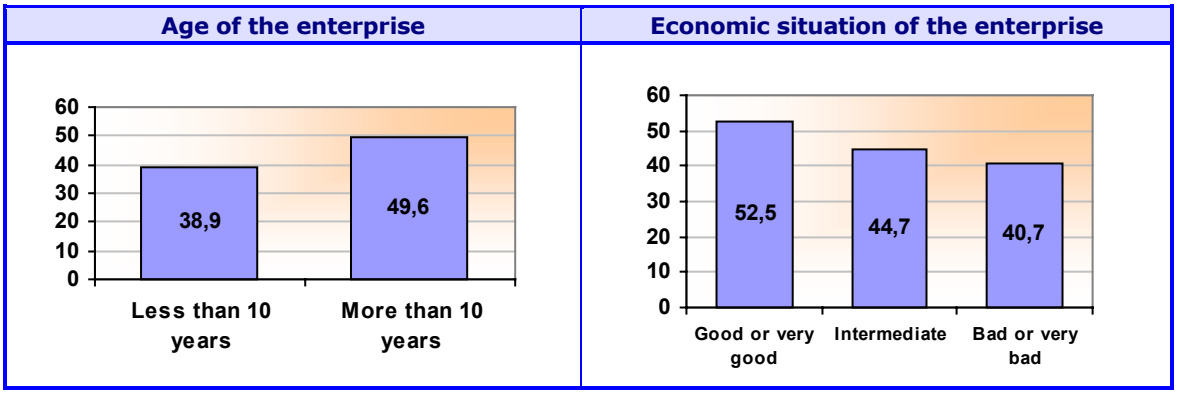
Variables	Countries				
	AT	E	F	FIN	NL
Formal mechanisms	9.5	11.0	10.3	5.2	3.6
Informal mechanisms	46.1	51.6	40.7	49.3	70.5
Both equal	42.5	37.1	49.0	45.5	25.9
Don't Know/ No answer	1.9	0.3	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0

All enterprises
Source: Leonardo CODE Project

Finally, the Leonardo CODE Survey provides a number of interesting additional results, in the sense that the SMEs' preference for informal tools for disseminating

purposes is more present the older the enterprises are and the better their economic situation is (see Graph 10)

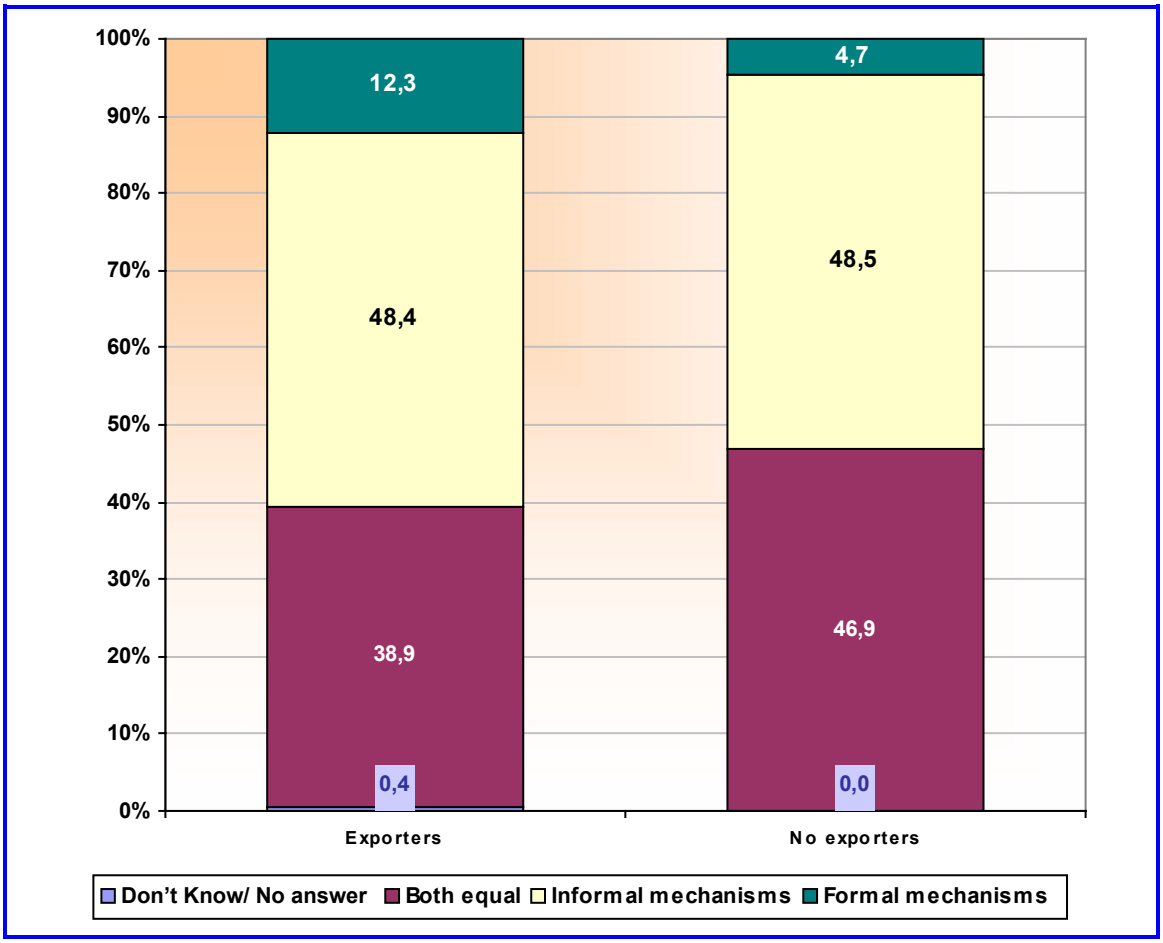
Graph 19. Percentage of enterprises that suggest that informal tools for disseminating relevant knowledge and information within the organisation are the most useful for them, by age and economic situation of the enterprises.



All enterprises
Source: Leonardo CODE Project

Finally, SMEs involved in exporting activities show a relatively higher preference for formal tools for knowledge disseminating purposes. Thus, up to 12.3% of manufacturing exporting SMEs say that they prefer these formal tools, whereas this percentage is only 4.7% amongst those non-exporting ones (see Graph 20).

Graph 20. Preference of enterprises of formal versus informal tools for disseminating relevant knowledge and information within the organisation, by involvement in exporting activities



All enterprises
Source: Leonardo CODE Project

7.3.3. Presence of databases for storing and diffusing relevant knowledge

The Leonardo CODE Survey also provides information on the presence within the European manufacturing SMEs of databases where relevant-to-the-enterprise knowledge, experiences and documents are stored for subsequent use, as well as information on some of the characteristics that define these databases.

According to the available results, up to 51.7% of manufacturing SMEs have got these databases (see Table 54), although this presence is slightly higher amongst

the medium sized enterprises in comparison to their small counterparts (56.9% and 50.5%, respectively). This result is also confirmed by other research studies[166]. Interestingly also, it is possible to identify important differences by sector and country level in the presence of these databases. Thus, and focusing on sector considerations, this presence is particularly relevant in three sectors, i.e. electric/electronics, metal/machinery and, finally, chemical/plastics (69.1%, 62.3% and 58.4% of SMEs in these sectors have databases, respectively). By way of contrast, SMEs in wood/furniture and especially in textile sectors have the lowest presence of databases (only 34.6% and 29.5% of SMEs has, respectively)[167].

[166] Almansa, A. et al, 'La Gestión del Conocimiento en España-2001' (Knowledge Management in Spain-2001), IESE Business School and Cap Gemini Ernst & Young, Barcelona, 2002.
[167] Interestingly, these sector differences in the presence of databases correspond to the same differences concerning the presence of formal management tools.

Table 54. Percentage of SMEs who suggest to have databases where relevant-to-the-enterprise knowledge, experiences and documents are stored for subsequent use, by enterprise size, sector, country, Self-assessment on the degree of dissemination of information within the organisation age of the enterprise, presence of exporting activities and economic situation of the enterprise

Variables	% of SMEs
Enterprise size	
✓ 10-49	50.5
✓ 50-249	56.9
✓ Total	51.7
Sector	
✓ Food/Beverage	47.5
✓ Textile/Shoes	29.5
✓ Wood/Furniture	34.6
✓ Paper/Print	43.4
✓ Chemical/Plastics	58.4
✓ Metal/Machinery	62.3
✓ Electric/Electronics	69.1
Country	
✓ Austria	57.3
✓ Spain	54.2
✓ France	43.6
✓ Finland	74.6
✓ The Netherlands	66.0
Self-assessment on the degree of dissemination of information within the organisation	
✓ Information is well/ very well disseminated	53.5
✓ Information is bad/very badly disseminated	45.9
Age of the enterprise	
✓ Less than 10 years old	38.7
✓ More than 10 years old	53.4
Presence of exporting activities	
✓ Yes	60.9
✓ No	37.1
Economic situation of the enterprise	
✓ Good or very good	57.6
✓ Intermediate	45.6
✓ Bad or very bad	47.0

All enterprises
Source: Leonardo CODE Project

Meanwhile, country considerations (see also Table 54) show that the highest presence of databases can be found amongst the Finnish and Dutch SMEs (74.6% and 66.0% of national SMEs have, respectively), whereas Austrian, Spanish and especially French SMEs have got the lowest presence (57.3%, 54.2% and 43.6% of SMEs have, also respectively).

Interestingly also, the Leonardo CODE Survey results confirm a number of additional results. Thus, these databases are more present amongst those SMEs who argue that the in-house information and knowledge is well disseminated within their organisations in comparison to those SMEs who suggest a bad dissemination (53.5% and 45.9%, respectively). The available results also suggest that these databases are more present in exporting, older and well performing manufacturing SMEs in comparison to their counterparts. In this sense, up to 53.4% of more-than-ten-years-old SMEs say to have these databases in comparison to 38.7% amongst the less-than-ten-years-old SMEs. Meanwhile, 60.9% of exporting SMEs have these databases, well above the 37.1% corresponding to the non-exporting ones. Finally, 57.6% of manufacturing SMEs in good or very good economic situation argue to have databases, well above the 47.0% amongst those SMEs in bad or very bad situation.

Case Study 5: Norma BV

NORMA is a machine shop that produces high-precision machine parts in metal and synthetic materials. NORMA is a supplier of high-precision parts and modules to industrial companies in the Netherlands and Germany. It works in close co-operation and in long-lasting relationships with customers. NORMA delivers series of products with a high degree of difficulty, complete modules and different services. NORMA follows the latest technological developments and pursues an innovative policy. The company exists for over 50 years. The present manager recently succeeded his father as general manager.

The staffs of NORMA consist of 85 employees. About 10 of them are trained on a higher technical level and 75 on secondary level of vocational training. The positions of the producing workers are specialised according to the type of tooling (milling, grinding, turning, etc.) and the type of machine they are working with. Gradually production planning is becoming more important and a growing number of workers have a position in planning the process, programming and developing tooling strategies.

The company has no difficulties in filling vacancies: it has a good reputation and the type of positions it offers is unique in the region. The company has on average 3 apprentices in the dual training system and also offers opportunities for a number of trainees and graduating students of secondary and higher vocational education. It takes about 3 years for school-leavers to develop into skilled workers. A necessary precondition is to have feeling for the job and especially feeling for working very precisely.

In order to stay competitive with low-cost countries, innovation power is becoming increasingly important. Manufacturing has to be less expensive, faster, and more flexible. To make innovations possible close relations with customers and suppliers are essential. This network structure also influences the organisation: it has to be open, informal and flexible. The company also innovates as an individual company, with flexible production automation as well as with marketing and sales.

Competence development is closely linked to the development of the company as such. The development of the company starts from its mission and management philosophy. Continuous development is, in the vision of management, a precondition for the company to maintain its position in the markets in which it operates. The knowledge, craftsmanship, and the motivation of the employees largely determine quality. The company can only be successful in the high-tech market with employees who master the latest technologies. Therefore, with regard to education and training, the company maintains a very active and non-bureaucratic strategy. It capitalises on continuing education and training in the latest machining technologies, which bears fruit in the long run.

Quality and precision standards are, in the short run, given by customer-specifications. To secure quality standards procedures according to ISO 9001 and 14001 have been implemented. So the main struggle for the company is to keep prices at a competitive level. It can do so by constantly focussing on the possibilities of a more efficient production to keep costs low. One of the main areas that are decisive for low costs is the degree of capacity utilisation. It needs constant reflection on all levels in the organisation, in production planning as well as execution, to raise the degree of capacity utilisation. One of the important areas is the development of efficient tooling strategies. The effect on staffing is that in production planning more highly skilled labour is required and co-operation between planning and execution has to be promoted. Employees have to develop a broader look at their own tasks and their own role in the company. Their understanding of the significance of their jobs within the framework of the strategy and the functioning of the company is important.

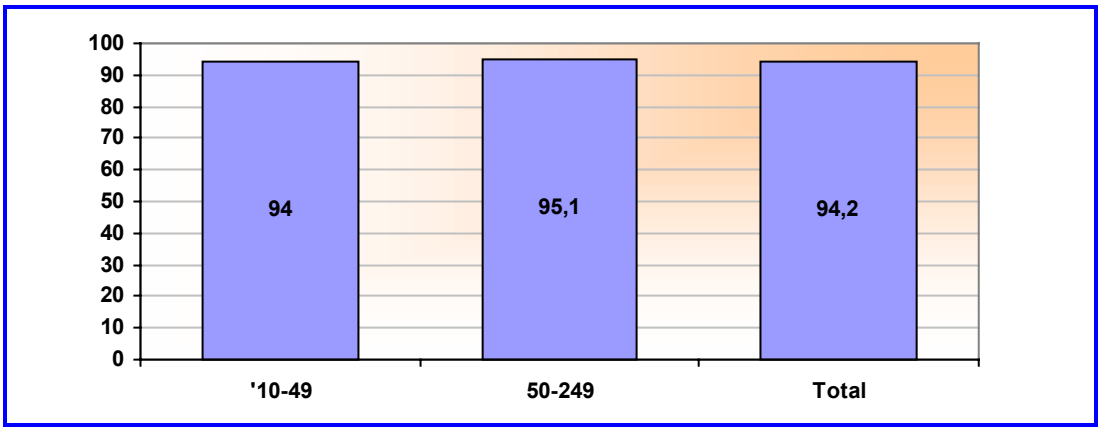
Competence development is interwoven with the strategy of the company. To promote the strategy and development of the company there is a big emphasis on competence development and HRM-policy is geared to this strategy. Employees are encouraged to participate in training activities. NORMA also uses a system for measurement and evaluation of employees' performance. Assessment and job evaluation talks are held regularly to monitor competence development needs. This method contributed to a nomination for the P&O Award in the Metal Union in 2000, and in 2002 to the certification according to the Investors in People standard. In addition to this, NORMA is an accredited training site, which means that it employs instructors who have completed Internship Instructor in Metalworking training. There are two categories of trainees, on the one hand, employees who attend training sessions once a week and work four days a week (they have an apprenticeship contract), and, on the other hand, students who complete their internship.

In 2003 NORMA has participated in an exchange project for interns from abroad. For a period of six weeks, German secondary-school students came to the Netherlands to complete their internship, and interns from the Netherlands visited German businesses. In the company, employees are trained on the job as well as through external courses. Experienced craftsmen mainly do training on the job. NORMA is one of the few smaller companies that publicise company news on a regular basis for all employees.

Source: EIM Business Policy and Research

The Leonardo CODE Survey also provides information on the characterisation of these databases. Thus, and to start with, the available data shows that in the large percentage of those manufacturing SMEs with databases, these databases are periodically updated. In this sense, in up to 94.2% of SMEs with databases these databases are periodically updated (see Graph 21). Interestingly enough, it is not possible to identify important differences in this percentage when other variables are taken into account (i.e. enterprise size, age of the enterprise, country or sector considerations, involvement in exporting activities or economic situation of the enterprise).

Graph 21. Percentage of manufacturing SMEs that periodically update their databases, by enterprise size



Data referred only to enterprises with databases
Source: Leonardo CODE Project

Meanwhile, 68.7% of those manufacturing SMEs with databases point out that these databases are accessible through ICT-based systems (see Table 55), although important differences can be appreciated if additional variables are included. In this sense, this ICT-based accessibility is positively related to the size of enterprises, so 65.8% of small enterprises argue for this accessibility in comparison to 80.2% amongst the medium-sized ones.

Table 55. Percentage of manufacturing SMEs with databases that suggest that these databases are accessible through ICT-based systems, by enterprise size, sector, country, age of the enterprise, presence of exporting activities and economic situation of the enterprise

Variables	% of SMEs
Enterprise size	
✓ 10-49	65.8
✓ 50-249	80.2
✓ Total	68.7
Sector	
✓ Food/Beverage	41.9
✓ Textile/Shoes	67.3
✓ Wood/Furniture	78.4
✓ Paper/Print	72.9
✓ Chemical/Plastics	75.7
✓ Metal/Machinery	69.3
✓ Electric/Electronics	82.2
Country	
✓ Austria	52.2
✓ Spain	89.9
✓ France	50.7
✓ Finland	64.8
✓ The Netherlands	67.1
Age of the enterprise	
✓ Less than 10 years old	44.4
✓ More than 10 years old	71.1
Presence of exporting activities	
✓ Yes	74.2
✓ No	54.2
Economic situation of the enterprise	
✓ Good or very good	63.8
✓ Intermediate	79.7
✓ Bad or very bad	55.3

Data referred only to enterprises with databases
Source: Leonardo CODE Project

Interestingly also, sector considerations show strong differences amongst sectors themselves, where the highest ICT-based accessibility corresponds to electric/electronics and chemical/plastics SMEs (82.2% and 75.7% of SMEs, respectively), well above the situation amongst the food/beverage SMEs (41.9% of SMEs). Meanwhile, it is possible to identify important national differences in the presence of ICT-based systems for accessing these databases, where it is precisely amongst the Spanish SMEs where this presence of ICT-based systems is more present (in 89.9% of the SMEs with databases). By way of contrast, this percentage is much lower amongst the French and Austrian SMEs (50.7% and 52.2%, respectively). Finally, the Leonardo CODE Survey results suggest that this presence of

ICT-based accessibility is more present amongst old, exporting and well performing SMEs in comparison to their counterparts (see also Table 55).

The Leonardo CODE Survey also provides a number of interesting hints on the degree of accessibility of the databases to the different occupational groups within the enterprises. In this sense, the available data shows that, for the largest share of SMEs with databases (precisely, 64.1%), these databases are accessible to allowed personnel (including the management board). Meanwhile, only 11.7% of SMEs argue that their databases are only accessible to the management board, whereas in 23.4% of SMEs these databases are accessible to all the enterprise's workforce (see Table 56). Enterprise size considerations show that the percentage of small enterprises suggesting that only the management board has access to these databases is higher than the percentage amongst the medium sized enterprises (13.8% and 3.2%, respectively). In any case, most SMEs say that these databases are only accessible to allowed personnel, irrespectively of size considerations.

Table 56. Accessibility of databases available within enterprises, by enterprise size (% of enterprises)

Variables	Enterprise size		
	10-49	50-249	Total
These databases are accessible to			
All the enterprise's workforce	23.1	24.6	23.4
Only allowed personnel (including management board)	62.9	69.2	64.1
Only the management board	13.8	3.2	11.7
Don't know/no answer	0.2	3.1	0.8

Data referred only to enterprises with databases.
Source: Leonardo CODE Project

Interestingly also, the largest percentage of SMEs with databases point out that these databases are accessible only to allowed personnel, irrespectively of sector or country considerations. In any case, and as far as sector considerations are concerned (see Table 57), the available results show that it is possible to identify three manufacturing sectors that show a higher than average percentage of SMEs for which these databases are only accessible to the management board. Precisely, these sectors include food/beverage, wood/furniture and paper/print (26.1%, 25.4% and 15.2% of SMEs with databases, respectively). By way of contrast, other sectors (namely electric/electronics and metal/machinery, together also with

food/beverage) show the highest percentage of SMEs for which their databases are accessible to all the enterprise'' workforce.

Table 57. Accessibility of databases available within enterprises, by sector (% of enterprises)

Variables	Sectors						
	Food/ Beverage	Textile/ Shoes	Wood/ Furniture	Paper/ Print	Chemical/ Plastics	Metal/ Machinery	Electric/ Electronics
These databases are accessible to							
All the enterprise's workforce	29.4	3.7	3.1	25.4	20.6	25.6	37.6
Only allowed personnel (including management board)	44.5	94.4	71.5	57.2	77.8	62.3	57.9
Only the management board	26.1	1.9	25.4	15.2	1.7	11.1	2.4
Don't know/no answer	0.0	0.0	0.0	2.2	0.0	1.0	2.1

Data referred only to enterprises with databases.
Source: Leonardo CODE Project

Concerning national considerations (see Table 58), the data show important differences in the percentage of national SMEs for whom their databases can only be accessed by the management board. Thus, this percentage is as high as 14.8% and 13.7% amongst the Spanish and Austrian SMEs, respectively, whereas this is only the case in 9.0% and 5.2% amongst the French and Finnish SMEs (11.4% in the Dutch case).

Table 58. Accessibility of databases available within enterprises, by country (% of enterprises)

Variables	Countries				
	AT	E	F	FIN	NL
These databases are accessible to					
All the enterprise's workforce	28.1	7.6	37.3	25.4	28.1
Only allowed personnel (including management board)	58.2	77.6	52.1	69.3	59.1
Only the management board	13.7	14.8	9.0	5.2	11.4
Don't know/no answer	0.0	0.0	1.7	0.0	1.4

Data referred only to enterprises with databases.
Source: Leonardo CODE Project

8. RELEVANT POLICY MEASURES FOR FOSTERING COMPETENCE DEVELOPMENT ACTIVITIES WITHIN SMEs

8. RELEVANT POLICY MEASURES FOR FOSTERING COMPETENCE DEVELOPMENT ACTIVITIES WITHIN SMEs

8.1. INTRODUCTION

This section presents the policy measures fostering competence development activities among SMEs that have been selected in each of the countries under consideration. As it shall be seen below, the measures are geared at improving the competencies and skills of SMEs, offering them tailored consulting services for human resource management and the definition of training/educational plans (Austria) or helping them to develop their competitiveness by raising their productivity (Finland). There is also a whole reform of the vocational training system (France), in addition to a programme helping SMEs identify and fulfil their competence needs (Spain) or a measure formally acknowledging competencies and skills acquired at work (Spain-Basque Country). Finally, an overall description of the national context in support of competence development activities is presented (The Netherlands).

The concrete examples of relevant policy measures described in this chapter include the following ones:

- Measure 1: "Qualifizierungsberatung für Betriebe" (Qualification Consultancy for Enterprises), developed in Austria
- Measure 2: "Työelämän kehittämisohjelma" (The Finnish Workplace Development Programme Tykes), developed in Finland
- Measure 3: "Reform of the French Vocational Training System", developed in France
- Measure 4: "Servicio de Integración Activa en la PYME, SIAP" (Service for Active Integration in SMEs), developed in Spain
- Measure 5: "Dispositivo de Evaluación y Reconocimiento de la Competencia" (Device for the Assessment and Recognition of Competence), developed in Spain-Basque Country
- Measure 6: National policy context in support of competence development activities, developed in The Netherlands

8.2. EXAMPLES OF RELEVANT POLICY MEASURES FOR FOSTERING COMPETENCE DEVELOPMENT ACTIVITIES WITHIN SMEs

8.2.1. Austria

The Austrian measure, Qualifizierungsberatung für Betriebe (Qualification Consultancy for Enterprises) is offered by the Arbeitsmarktservice Austria (AMS, Austrian Public Employment Service) on behalf of the Federal Ministry for Economic Affairs and Labour and it is supported by financial means of the ESF[168]. The measure is part of the Austrian Qualifizierungsberatung (qualification consultancy), which can be seen as one part of a preventive labour market policy contributing to:

- supporting companies by their planning of personnel development,
- the provision of recent and generally applicable vocational knowledge to the employees of these companies,
- a higher level of participation in qualification measures, and
- the reduction of (the risk of) unemployment.

These objectives are to be attained by three operational measures:

- Qualifizierungsberatung zum Aufbau von JobRotation-Projekten (Qualification Consultancy for Implementing Job Rotation Projects).
- Qualifizierungsberatung zum Aufbau von Qualifizierungsverbünden (Qualification Consultancy for Implementing Qualification Networks).
- Qualifizierungsberatung für Betriebe (Qualification Consultancy for Enterprises)

While the first and the second measures are also accessible for larger enterprises[169], the Qualifizierungsberatung für Betriebe strictly targets at Austrian enterprises with up to 50 employees. The objective of this policy measure is to strengthen these companies by providing adequate qualification for the employees to keep up with competition as the experience from the previous support period had shown that particularly employees of small and micro enterprises participate in further education less frequently than those of larger companies.

[168] With regard to Objective 3 the costs are equally shared among AMS and ESF. With regard to Objective 1, 75 % of the costs are financed by ESF and 25 % by AMS.
[169] The Qualifizierungsberatung zum Aufbau von Qualifizierungsverbünden is only accessible for larger enterprises if at least 50 % of the participating companies are SMEs.

Concerning the time period of the measure, the Qualifizierungsberatung constitutes one measure of the pillar "Flexibility at the Labour Market" of the Single Programming Document for the Objective 3 Austria (and Objective 1 Burgenland, respectively) 2000 - 2006. Therefore, the support measure is valid until the end of 2006 and by now, no decision concerning a prolongation has been made.

Focusing on the operational description of the measure, it offers specialised consultancy to participant small enterprises with the aim to find the most appropriate method for human resource management. Hence, employees are the main target group of the measure. This is done by a series of business consultants throughout Austria (ÖSB Consulting GmbH, BAB, P&K Zimmermann, Bit) that are engaged in the operational advisory services to the enterprises.

More specifically, the Qualifizierungsberatung für Betriebe aims at drawing up a target oriented educational plan for the employees during a promoted consultancy period of two days (maximum), i.e. cost-free consultancy is provided to the small companies. The contact between the enterprises and the consultant agency is established by a pro-active approach of the AMS or the consultant. The result of the consultancy constitutes an educational plan for the company showing:

- a "skills inventory" (comparison between the available and necessary skills and competencies for each work place)
- a qualification plan (including the aim and contents of the qualification activities as well as a time schedule)
- a documentation about the general usability of the qualification (going beyond the specific enterprise)
- a documentation about the objectives to be attained by the qualification measure for both, the employer and the employee

The consultant might, however, also come to the result that organisational changes might be necessary and identify, as to this respect, qualification requirements.

Additionally, and in order to raise the awareness of Austrian companies for the measure, several promotion activities take place:

- Presentations at company visits by the AMS
- Pro-active telephone contacts with potential target companies

- Provision of information folders
- Adverts in target group specific magazines

Concerning an overall assessment of the measure, it has to be borne in mind that in Austria, the Qualifizierungsberatung (referring to all three operational instruments) is the only active approach to provide advice to the SMEs. Since its implementation about 6,000 Austrian enterprises have participated in the measure, two thirds of which being SMEs. Measures for quality assurance (e.g. survey among the participants regarding their satisfaction) take place every two years. The Austrian Qualifizierungberatung will also be evaluated by the Federal Ministry for Economic Affairs and Labour.

8.2.2. Finland

The Finnish measure, Työelämän kehittämisohjelma (The Finnish Workplace Development Programme Tykes), is implemented by the Finnish Ministry of Labour jointly with the labour market organisations, the trade associations and other ministries (Ministry of Social Affairs and Health and Ministry of Trade and Industry). The aim of the project is to improve the productivity and quality of working life at Finnish workplaces. The underlying idea is to help organisations to find new ways to rise to the development challenges and thus stick to skilled personnel, recruit new one and develop the competitiveness.

The programme is based on the results and experiences of the two previous Workplace development programmes (1995-2003) and the National productivity programme (1993-2003). The Tykes programme was started in 2004 and will be continued until 2009.

Moving onto the actual description of the programme, it participates in the expert costs of adopted projects and provides information on best practices and cooperation potentials. The Tykes programme unites resources and transfers the achievements of working life development work for practical use. Also the results of earlier development programmes, practical experiences and innovations enrich the programme and its projects.

Leonardo Programme

The programme pays the expert costs for four types of project:

- Basic analysis: to prepare and plan a development project focusing on the themes of the Tykes programme (80% grant up to €10,000).
- Development project: to promote change in the mode of operation, to raise productivity and the quality of working life (themes, for example: organising the work, work processes, working methods, internal co-operation, external networking, superior work, leadership, wage and hours of work systems, work environment) (100% grant up to €100,000).
- Method development project: to create and test new and innovative development practices, methods and tools (discretionary grant).
- Learning networks of working life: to build up or develop the operation of learning networks (discretionary grant).

The target groups of the programme are working places of all sizes, both public and private, across all branches and from throughout the country. Nonetheless, its primary focus lies on SMEs and welfare and health communities. The basic premise of the funding is a shared view by management and employees to join forces for workplace development.

As far as an evaluation of the measure is concerned, the new Tykes programme has only started in 2004 and consequently, available data are based on the evaluation study of the previous Workplace Development Programme (1995-2003). In this sense, it was found out that more than 1,300 workplaces and 135,000 employees in about 700 projects took part in the programme in 1996-2003. The most common objects of the projects were work processes, the organisation of work (including teams, groups and cells), interaction and social relations in work communities, human resource management, external networking (including partnership), work ability, customer service and work methods.

In terms of funding allocations, the largest sectoral groupings were industry and construction (45%), followed by local authorities (30%), which carry the main responsibility for basic education, welfare and health care services in Finland. The leading individual sectors were metal and engineering, and municipal welfare and health care. Regarding business size, SMEs were granted with 65% of all funding to company projects in the last years.

Leonardo Programme

The Workplace Development Programme was evaluated[170] in 2003, the overall impression being positive. The study characterises the programme as a 'small giant' in its own environment, highlighting the following:

- By focusing on social innovation and with an emphasis on network building and companies' ability for learning and innovation, the programme has followed a 'broad systemic innovation policy approach' in a national context dominated by a technology-oriented view on innovation.
- The goals and the development concept of the programme reflect modern development trends in working-life, workplace and work organisation development even by international standards.
- The programme is currently relevant and its ability for strategic targeting is still high.
- It enjoys a high legitimacy among its stakeholder groups.
- The programme has a sufficiently high profile with respect to its goals, development concept and modes of operation.

A number of weaknesses characteristic of the programme and project design were also raised in the evaluation. These included, for instance, the issue of whether an individual workplace or company is an appropriate unit of development operations with a view to bringing about the following:

- lasting and generative project impacts,
- undeveloped links and dialogue with regional-level agencies in programme and project activities,
- the modest role played by scientific and research input in a majority of the projects and
- the lack of institutionalised procedures for programme and policy learning.

A question on whether the profile of workplaces involved in the projects corresponds with the basic aims of the programme was also posed in the study.

[170] Pitkänen, Sari – Rissanen, Pekka – Arnkil, Robert – Piirainen, Tatu – Koski, Pasi – Berg, Pekka – Vartiainen, Matti – Gustavsen, Bjorn, Ekman Philips, Marianne – Finne, Håkan – Riegler, Cladius (2003) Työelämän kehittämisohjelman kokonaisarviointi (Evaluation of the Finnish workplace development programme). Helsinki.

Finally, regarding recent changes, there are a number of new aspects in the new programme compared to the previous one.

- The new programme has made a clear distinction between aims of different conceptual level and has built up, correspondingly, a comprehensive set of indicators for measuring programme success at all following four levels: 1) public policy level, 2) programme level, 3) generative level and 4) workplace level. Monitoring and analysing development on these indicators will serve as a mechanism for policy learning in the new programme.
- The new programme lays increasing emphasis on method development besides workplace-initiated development projects. Method development calls for research input and a special appropriation is earmarked for the planning and trying out of new, innovative methods, practices and solutions for workplaces confronting problems in the knowledge-intensive and networked economy.
- The new programme emphasises the creation and support of learning networks, i.e. shared forums for learning for workplaces and different kind of R&D units. The aim of the learning networks, whether topic-, region- or industry-based, is to enhance workplaces' and R&D units' knowledge in workplace development and try out novel forms of development co-operation between different actors of the network. Learning networks will constitute a new form of project activity in the programme with an appropriation of its own.
- The new programme will establish a special forum of scientific experts as an advisory body for the tripartite management group. The forum will consist of members of the leading universities, research institutes and polytechnic institutes in Finland with a view to monitoring the advance of the programme, ensuring scientific input in the programme activities and making proposals concerning new forms of activity and the development of the programme concept.
- The new programme will make a determined effort to increase the number of workplace researchers and developers in R&D units with a special focus on polytechnic institutes. The programme aims to help polytechnic institutes to strengthen their role in national and regional workplace development and innovation policies.
- The new programme will increasingly network its activities with other actors in workplace development and innovation policy both at national and regional level. At national level, these actors include e.g. the Ministry of Social Affairs and Health, the Ministry of Trade and Industry, the Ministry of Education, the Centre for Industrial Safety and the National Technology Agency (Tekes). At

regional level special emphasis will be laid on co-operation with the regional Employment and Economic Development Centres, polytechnic institutes and entrepreneurs' regional and local organisations[171].

8.2.3. France

The selected measure in France is the Reform of the French Vocational Training System[172], whose initiative rests with social partners (national employers and employees organisations), that after months of negotiations concluded a national inter-branches framework agreement in 2003, signed by all organisations representing employers and employees at national level.

The existing vocational training system, whose main lines date back to 1970 (although modified several times), was not able to comply with the challenges of lifelong learning nor with the needs of the economy as regards the increase of skills and competencies of the workforce. Therefore, as expressed by the social partners, the objectives of the reform are the following:

- To allow any employee to become an actor of its own professional evolution;
- To favour the acquisition of a qualification all lifelong, for youngsters, unemployed and disfavoured employees;

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[171] Alasoini, Tuomo (2003) Eight Years of Programmatic Workplace Development in Finland. Experiences and Future Outlook of the Finnish Workplace Developmen Programme. European Conference New Forms of Work Organization: An Opportunity for Change in the Company, organized by the European Commission, 3.-4. November 2003, Barcelona. http://www.mol.fi/tyke/00-03/en/articles/article09.html

[172] The information sources consulted are:

- Accord interprofessionnel national du 20 septembre 2003 relatif à l'accès des salariés à la formation tout au long de la vie professionnelle (National interbranch agreement dated 20 September 2003 concerning life long learning)
- Accord interprofessionnel national du 5 décembre 2003 relatif à l'accès des salariés à la formation tout au long de la vie professionnelle (National interbranch agreement dated 5 December 2003 concerning life long learning) ;
- Loi du 4 mai 2004 relative à la formation tout au long de la vie et au dialogue social (Law dated 4 May 2004 concerning life long learning and social dialogue).

Web sites :

- www.reforme-formation.com;
- www.agefos-pme.com;
- www.travail.gouv.fr/formation.html;
-

- To develop the access of employees to training actions all lifelong;
- To increase the volume of training actions by creating conditions allowing that they take place during working or non-working hours. These conditions concern the nature and duration of training actions as well as the commitments they imply;
- To reduce the existing differences of access to training for SMEs employees;
- To favour equality between genders as regards the access to training;
- To give personnel representatives and management staff of the enterprise a crucial role to ensure the development of vocational training, in particular through information and 'coaching';
- To ensure a co-ordinated development of vocational training in branches and regions;
- To favour individualisation of training, use of new training technologies and on-the-job training.

The practical implementation of the agreement requires:

- For some aspects, negotiations at branch level;
- And for other aspects adaptation of the legal and regulatory framework (law, decrees, etc.)

Both processes have been initiated and are still ongoing. In particular, a Law on lifelong learning and social dialogue has been promulgated on May 2004 covering all the points included in the Agreement that needed to be dealt with by the Law.

The reform concerns all French private enterprises and their employees, whatever their location, size or activity sector, the employees being the main target group. Focusing on its operational description, the rights and disposals created or modified by the reform are presented next:

(i) Life long information, Orientation and 'certification' of employees

A) The reform creates new tools in order to develop the role of the employee as an actor of its professional evolution and to favour his/her mobility:

- Professional interview (entretien professionnel): any employee who works from more than 2 years in the enterprise, must benefit at least each two years from an 'entretien professionnel' according to the conditions defined by a branch agreement, by an enterprise agreement

or, if no agreement is available, by the employer. The proposals made in the field of training can be included in his/her training passport (see next bullet point, below) if the employee wishes so.

- Training passport (passeport formation): it is a personal document that retraces knowledge, competencies and skills acquired by the employee. This tool is intended to favour mobility of the employee both inside and outside the enterprise.

B) The reform confirms the right for every employee to benefit from a competencies audit (bilan de compétences) or from a VAE (validation des acquis de l'expérience) during working or non-working hours. What is new is that for experienced employees (over 45 years and/or with 25 years in employment), the right is systematised.

C) All professional branches have to settle a Prospective Observatory for jobs and skills (Observatoires prospectifs des métiers et des qualifications). The objective is to know and anticipate the evolution of jobs and of competencies and training needs in order to define adapted policies and strategies. In particular, these Observatories will allow defining priorities of DIF (see below).

The responsibility of all these points rests only with social partners; they are not dealt with by the law.

(ii) Vocational training

A) The reform creates two new tools for employees in order to foster their access to training:

1. DIF (droit individuel à la formation / personal training right) of 20 hours per year that can be cumulated during 6 years. This right is open to all employees. The employee is the one who applies, with the agreement of the employer as regards the choice of the training followed. This training is paid by the employer and takes place during non-working hours unless a branch agreement foresees that it can take place during working hours. When taking place during non-working hours, the employer must pay a training allowance equal to 50% of the net wage. The employer must also take formal commitments (i.e. written) regarding the recognition of this training. Branches will define the priorities of the use of DIF concerning the beneficiaries and the topics of training.
2. Professionalising period (période de professionnalisation). This disposal concerns:
   - employees whose skills are too low;

- employees that have a project of enterprise start-up or take-over;
- employees with at least 25 years of professional activity or over 45 years old and being employed in the enterprise for at least 1 year;
- employees coming back from a maternity or parental leave.

The professionalising period is implemented by request of either the employee or the employer and it allows benefiting from sandwich training.

B) Other ways of access to training are maintained with modifications. The main evolution is the opening of the possibility of vocational training during non-working hours.

1. Training plans now distinguish three types of training actions:
   - adaptation to the work place: this training takes place during working hours and employees earn their usual wage;
   - actions related to the evolution of jobs or contributing to keep one's job: this training takes place during working hours and employees earn their usual wage but if the usual working time is exceeded, this is not regarded as supplementary working hours (in the limit of 50 hours and an agreement between the employer and the employee must foresee this possibility);
   - actions targeting the development of competencies that may take place during non-working hours in the limit of 80 hours per year and per employee. During this training employees earn a training allowance equal to 50% of their net wage. An agreement between the employer and the employee must define the (positive) consequences for the employee if he/she is successful with the training followed: access conditions to a job that meet the acquired competencies, classification of the employee and how the efforts of the employee will be taken into account.
2. The CIF (congé individuel de formation/personal training leave) is also maintained. The employee can now benefit from consultancy services in order to define his/her professional project and find the better means to reach his/her objectives.
3. Enterprises with less than 50 employees can benefit form a financial aid from the State to recruit an employee in order to replace an employee on training (CIF excluded). Training must take place during working hours and the support is granted for a maximum of one year.

C) The system of compulsory financing of vocational training (both initial and continuing) by enterprises is maintained and the rates are increased:

1. From January 2005, enterprises with 10 employees and more will dedicate 1.6% (instead of 1.5%) of the total gross wages paid during the previous year to vocational training;
2. For enterprises up to 10 employees, the rate will increase to 0.40% in 2005 and to 0.55% from 2006 on (as opposed to the previous 0.20%).

(iii) Sandwich training

A new and single employment contract, called professionalising contract (contrat de professionalisation), is created to replace the three former sandwich training contracts. This contract is open to youngsters (less than 26 years old) and to un-employed (over 26 years old). It mixes an employment contract of 6 to 12 months together with training during at least 15% of the contract length with a minimum of 150 hours. Branch agreements can increase the length of the contract and/or the percentage share of training.

Regarding an assessment of the reform, in July 2004 AGEFOS-PME conducted a survey among 500 SMEs (from 1 to 499 employees and members of AGEFOS-PME) in industry, trade and services concerning their knowledge and opinion on this re-form[173], in particular as regards the DIF and the professionalising contract. It was found that 76% of the respondents know at least one aspect of the reform: 57% are aware of the DIF and 59% know that the professionalising contract substitutes the former "sandwich integration" contracts. The possibility to train employees on non-working hours is less known (44%) as well as the new professionalising period (24%). It also appears that the knowledge of the reform varies amongst sectors and size-classes: the knowledge rate increasing with the size class.

At the date of the survey 89% of large SMEs had already implemented (or were going to before the end of 2004) one or several actions in order to adapt their en-terprise to the reform. On the opposite, 23% of SMEs with less than 10 employees had still not planned anything and 20% estimated they would start in the second half of 2005.

[173] Agefos-Pme, Réforme de la formation professionnelle : qu'en pensent les PME ? (The reform of the vocational traning system: what do SMEs think about it ?), Coll. Regard Sur, Paris, October 2004.

As regards DIF, it seems that the majority of respondents have in general a good opinion of the DIF and are not too much worried about its implementation (see Table 1 below)

Table 1 Do you agree or not with the following proposal (in % of the total number of respondents)?

	Agree	Disagree	NA
DIF is an opportunity for the enterprise and its training policy	77	21	2
DIF is an opportunity for the employee and its personal evolution	87	10	2
Dialogue between employee and employer is an important aspect of DIF	95	4	1
DIF will meet support of employees of the enterprise	66	27	7
DIF is not an immediate priority, I will see this in a few years	59	39	2
There is a risk that all employees request to benefit from the DIF at the same time	29	68	4
DIF presents a risk for the general coherence of the training policy	32	63	5

SMEs seem to be interested in the new professionalising contract: 73% of the respondents estimate that they will be concerned. According to the respondents, the advantages of this contract are numerous: for 47% it offers recruitment perspectives, for 37% it offers skills useful for the enterprise, for 31% the system appears flexible, etc.

The majority of respondents estimate that they would use this type of contract for recruiting young people: 58% for young graduates, 32% for young unemployed (less than 26 years old), 28% for unqualified youngsters. Furthermore, 23% would use it for recruiting unemployed over 26 years old and 14% for disfavoured people (disabled people, long term unemployed, etc.).

8.2.4. Spain

The Servicio de Integración Activa en la PYME, SIAP (Service for Active Integration in SMEs) is offered by the High Council of Spanish Chambers of Commerce (Consejo Superior de Cámaras)[174] and the National Employment Institute (Instituto Nacional de Empleo, INEM)[175].

The goal of the measure is to provide those SMEs in need of employment with prospective candidates who have a similar profile to that sought by the businesses in order to fill their vacancies. Hence, SIAP identifies competence needs among a particular group of SMEs in a geographical region and activity sector and finds suitable candidates for them. The objectives of SIAP are:

- Linking occupational training to SME needs.
- Fostering SME development by supporting their recruitment of qualified personnel.
- Establishing a closer link between labour supply and demand (by SMEs).
- Fostering the professional integration of those groups in search of employment in the framework of real SME needs.

Concerning the time period of the measure, it is being gradually implemented in different waves. The first one took place in 2002-2003 across six different provinces of Spain (Albacete, Granada, Navarra, Palencia, Salamanca and Sevilla). Currently, the project has been extended to the remaining provinces of Andalucía and Ceuta (Spanish Territory in Northern Africa) and it is expected that in 2005 another wave of the measure will include Aragón, Asturias, Castilla y León and Galicia.

Focusing next on the main features of the measure, it has to be stressed that the SIAP, which is brand new in Spain, identifies both SMEs in need of employment and unemployed people registered within the National Employment Institute looking for a job. More specifically, a series of actions are regarded with both target groups.

[174] See: www.camaras.es
[175] See: www.inem.es

With the SMEs:

- Identification of employment needs among participant SMEs.
- Identification of sectorial employment needs.
- Incorporation of suitable candidates in participant SMEs.

With job seekers:

- Selection of the most suitable candidates to fill the vacancies identified among participant SMEs.
- Improve employability of selected candidates by offering them training on three main areas: personal development (attitudes, behaviour), transversal training (including self-employment) and job-specific technical training.
- Individualised monitoring of each participant through a series of tutorials.

With both groups:

- Carrying out occupational practices in SMEs to foster employability of participants.
- Launching of a technical assistance centre aimed at dealing with questions and difficulties that may arise throughout the whole process.

The programme lasts for one year and regards three different stages. The **first** stage initiates with the definition of the skill needs of a group of SMEs based on the results of a survey carried out by the Chamber of Commerce among the SMEs of the area. This stage is key since the questionnaire results provide information on the actual needs of SMEs. Once the profiles for the existing vacancies are formally set out, SIAP contacts the Public Employment Service for the identification of suitable prospective candidates already registered within the Public Employment Service.

Having in mind the survey results, the **second** stage follows, in which free training is given to all participants, which have been previously selected by the National Employment Institute according to the needed profiles. The training process starts with a 90-hour course at the Chamber of Commerce on personal development and transversal training, where participants learn about how to look for a job, prepare their CV and the use of IT among others. They are also given tutorials about self-employment. After the common training, there is individualised job-specific training lasting 120 hours, either at the Chamber of Commerce or at one of the SMEs (if training requires elements that are not available at the Chamber of Commerce).

In any case, the intention is to make this specific training as similar to the actual job as possible. The training stage lasts approximately two months.

The **third** stage regards paid internships for all participants for a maximum of two months. Those who are actually offered a position after the internship are monitored by the Chambers of Commerce during the first months in order to make sure that they are carrying out the tasks for which they were trained and hired. It has to be added that the Public Employment Institute, in addition of making the first selection of prospective candidates, is the main source of funds of the measure, providing around 70-75% of the total budget.

As it has been pointed out, the measure has taken place in different regions of Spain, but it is expected to be gradually implemented throughout the whole of the country. Concerning eligibility requirements, unemployed people registered within the National Employment Institute and SMEs (businesses with no more than 250 employees) are the target groups of the measure. There is no sector consideration.

It has to be added that during the first wave of the measure in 2002-2003, over 1,500 SMEs were surveyed and training was provided to 1,005 participants, 482 of whom ended up being hired by SMEs. Those candidates who have not been selected are registered within the Chambers of Commerce for future job opportunities.

Among the weak points of SIAP, the Chambers of Commerce point that they are not entitled to choose freely among the prospective candidates, but rather from a group previously selected by the National Employment Institute. It is argued that the criteria to choose these people respond more to social integration issues than the actual needs of firms or even their likelihood of actually getting a job.

8.2.5. Spain-Basque Country

A second measure has been included for Spain, "Dispositivo de Evaluación y Reconocimiento de la Competencia" (Device for the Assessment and Recognition of Competence), because it represents the first attempt in the country aimed at formally recognising competence acquired through professional experience. The measure is provided by the Basque Agency for the Assessment of Competence and Quality of Vocational Training (Agencia Vasca para la Evaluación de la Competencia y la Calidad de la Formación Profesional)[176], a dependant body of the Basque Regional Government.

As it has been hinted above, the goal of the selected measure is to formally recognise the competence and skills acquired at work through formal and informal practices, such as the actual on-the-job experience. Traditionally, only training acquired through formal learning systems has been recognised but people acquire and develop competence through many different ways: daily work, social and information networks and initial and continuing training.

Under the new system, which aims to bring flexibility, participants will not only be granted with an official certificate recognising their competencies but they will also be given the opportunity to obtain a Vocational Training (VT) degree.

With regards to the time framework of the measure, it has been set up in October 2004 and there are going to be two registration periods each year: one between October and mid November and another one in March. The measure is going to be implemented gradually, initially focusing on five training areas: Mechanic production, Automotion, Catering and Tourism, Electricity and Electronics and Maintenance and Production Services. Nevertheless, all fields are expected to be included in the future.

Focusing next on its operational description, the system is targeted at citizens, employed or unemployed, who have professional experience of at least two years. It aims to foster lifelong learning by granting them with a certificate acknowledging their skills and competence. Furthermore, as it has been mentioned above, they will also have a chance to be granted with an official VT degree.

[176] See: http://www.euskadi.net/agencia

Participants' skills will initially be assessed by a team of experts and, if there is some competence or knowledge gap, required training will be provided. Not only professional experience and training courses will be taken into account, but also attended seminars, workshops, self-learning, etc.

More specifically, the measure works as follows:

- Those people willing to take part in the measure have to register at the nearest VT centre where they will hold a personal interview (or small group dynamics) with a counsellor who will advise them on the actual professional field they should aim for. The fees for this will amount to €24.
- The next step of the measure involves a team of experts, who assess the competencies of each person and determine whether their experience and knowledge qualify for the granting of the certificate. Participants will pay a €12 fee for each competence unit they want to have officially recognised. The possible outcomes are the following:
    - If the competence level is very high, participants will be granted with the certificate and will be advised on the course/s to take towards an official VT degree.
    - As opposed to this, if the final evaluation is negative, the participant will be recommended to take part in a series of specific seminars aimed at increasing her/his competence level and, eventually, achieving the certificate.
    - If there are doubts and the assessment is unclear, participants will then carry out further competence tests (either at VT centres, if they are not working currently or at their businesses, if they are employed) in order to decide whether or not they are eligible for the certificate. If not, they will be given training in order to bridge the identified competence gap.

As it has been stated above, the target group of the measure is composed by all those citizens who want their competence to be officially recognised or to obtain a VT degree, irrespectively of their labour market status (employed/unemployed). However, they must have worked for at least two years.

Concerning eligibility requirements, the system is to be applied only in the Basque Country, which becomes the first region in Spain to implement a measure in this domain. Concerning eligibility requirements, participants must have either worked

for two years or have completed VT courses on the field they want their competencies to be acknowledged. All participants must be over 18 years of age.

Due to the fact that measure is brand new and has only been set up in October 2004 there is still no evaluation available. However, it is expected that very few people will be granted straightforwardly with an official VT degree right after the initial competence assessment. The majority of them will probably have to attend some courses in order to be granted with a VT degree, if they wish.

It may well happen that some of the participants are willing to go on towards an official VT degree but do not have the educational requirement to do it, that is, the Secondary Education (Educación Secundaria) or High School Certificate (Bachillerato). In these cases, a series of basic courses on the most important subjects will be offered so that they can qualify for a VT degree.

8.2.6. The Netherlands

The Dutch measure does not deal with any specific programme in support of competence development among SMEs but rather an overall description of the national policy context, which since the mid 1990s focuses on turning the Dutch economy into a knowledge based one. This involves, among others, improving the competencies and employability of the workforce. In this sense, the main agents for the completion of this goal are the following:

- The Dutch Ministry of Education, Science and Culture, as the responsible organisation for initial vocational education and for the funding of Regional training centres and Colleges for higher vocational education (ROC).
- The Dutch Ministry of Economic Affairs, which supports entrepreneurial training for employees and job seekers.
- The Dutch Ministry of Social Affairs and Employment, focusing on promoting labour market participation, equal opportunities and reintegration in the labour market.
- The Dutch Ministry of Finance, contributing to individual spending on education through tax reductions.
- Social partners.
- European Union.

However, it has to be stressed that the role of the government in competence development is limited, the main responsibilities lying on employers, employees themselves and their respective organisations. The principle underlying the policies of the Dutch government is that government intervention be limited to facilitating initiatives by the social partners, individual employers and employees and to intervene if market imperfections prevent or hamper investment in lifelong learning.

In this sense, job-related training of employees in The Netherlands mostly takes place through employer sponsored internal and external courses and informal training in the work situation. Although a large part of this is left over to market forces, collective agreements between social partners also play an important role. As a result of collective bargaining agreements at industry level, levy systems have been set up in a lot of sectors, which are then allocated to sectoral training funds, known as O&O funds. Their goal is to promote training of employees in the sector along with stimulating new initiatives in training. O&O funds pay the costs of training, representing a ver powerful instrument for the promotion of training within companies, since they also help develop new training, they experiment with new forms of training, pay for research in training needs and advise employers to develop training policy, among others.

In order to increase the interaction between publicly financed providers of vocational education and training (such as the ROC) and regional labour markets, a number of 'Techno-centres' have been established since 2000. They are intended to promote the active exploration of bottlenecks in regional and local labour markets (exclusively in technical professions), the exchange of knowledge between vocational education institutions and regional businesses and the encouragement of closer co-operation between ROCs and employers.

Other recent specific regulations and policy measures on the topic are the following:

- The announced introduction of a financial support system of Individual Learning Accounts (ILA) in 2003 has been delayed. The ILAs are aimed, among others, at increasing the level of education of the population improving their employability and fostering their participation in programmes for competence devel-

opment (specifically those aimed at older employees, less educated employees and ethnic minorities).

- In January 2003 the cabinet announced the start of an interdepartmental platform to co-ordinate policies on lifelong learning.
- In January 2004 fiscal incentives for employers regarding costs of training were abolished, due to their lack of effectiveness. However, there are conflicting views on this, as shown by the opinion of Metaalunie[177], arguing that these incentives were beneficial for the promotion of competence development activities, especially among SMEs.
- Investors in people label, a government-subsidised certification developed to award companies that invest in the employability of their employees and use career advisers.
- Employability adviser, a pilot project providing human resource management consultancy for SMEs.
- Framework regulation Education, consisting in a tailor made training programme for those at risk of unemployment targeted at improving their chances in the labour market.
- Regulation training impulse, establishing innovative projects for training employees to a higher level of vocational qualification.

Future policies are expected to be integrated into the wider area of regulations concerning people's course of life (from the cradle to the grave), in which periods of education and training, working, taking care of children or family and resting will be intertwined with regulations concerning distribution and management of knowledge and stimulating innovation. A close relationship between needs for competence development and innovation processes within the enterprise can be observed. Therefore, co-ordination between regulations in those two fields is deemed to be required because of their mutual dependence.

[177] The umbrella organisation of SMEs in the metal working industry.

9. CONCLUSIONS AND RECOMMENDATIONS FROM THE WHOLE RESEARCH

9. CONCLUSIONS AND RECOMMENDATIONS

9.1. CONCLUSIONS

1. This research report, namely **Competence Development in SMEs: Practices and Methods for Learning and Capacity Building** (**CODE**), has been conducted within the framework of **the Leonardo da Vinci Community Vocational Training Action Programme** (**Reference material**). This research project tries to gain new insight on the position of European manufacturing SMEs towards knowledge and learning as a competitive factor and on the relevance of the different methods they make use of in order to develop and increase their current knowledge capital. In addition to this, the research analyses what are the attitudes, benefits and barriers that manufacturing SMEs identify for engaging themselves in competence development strategies. Finally, the project intends to identify both relevant public policy support programmes in this domain and examples of enterprises where competence development plays effectively a central role.

2. The research has been conducted by a partnership of five European research Institutes belonging to Spain (**Ikei**), France (**Citia**), Austria (**Austrian Institute for SME Research**), The Netherlands (**EIM Business & Policy Research**) and Finland (**Turku School of Economics and Business Administration**), where each partner has been responsible of collecting the information for his respective country under the general co-ordination of the **Instituto Vasco de Estudios e Investigación** (**Ikei**).

3. From a methodological perspective, the research is primarily based on a survey conducted amongst a sample of 765 effectively surveyed manufacturing SMEs (according to a pre-defined distribution by sector, size and country). This survey was conducted in the time period March-May 2004. **Ikei** has recorded all the questionnaires and re-weighted the results according to real size and sector distribution within each one of the surveyed countries. Meanwhile, and for obtaining the European averages, national results have been weighted according to the real weight of national manufacturing SMEs within the Europe-5 total. The results obtained from the survey have been complemented with a review of literature, several interviews with a number of key informers and an analysis

of relevant public policy support programmes in this domain and examples of enterprises where competence development plays effectively a central role.

4. It is currently a well-recognised fact that the Western developed countries have experienced in the past few decades a transformation in which knowledge has become one of the most important inputs underpinning economic development and competitive advantage in the current competitive and complex environment. From a micro perspective also, enterprises in general and SMEs in particular are paying an increasing attention to the issue of knowledge, skill and competencies as key factors underpinning the enterprises' competitiveness in the so-called knowledge-based economy.

5. Discrete 'learning from others' and 'on-the-job' practices are a 'hallmark' of the small enterprises, where most of the learning is based on 'learning by doing'. Such non-formal training practices do result in tacit and non-formal competencies and skills that form the basis for an enterprise's competitive edge. In order to capture all these non-formal elements that characterise learning practices amongst SMEs, there is an increasing attention in the business and management literature to concentrate on the concept of 'competence'.

6. Competence is defined in this research as the combination of human knowledge, skills and aptitudes serving productive purposes in SMEs and contributing (or expected to contribute) to their competitiveness. Meanwhile, competence development represents the measures an enterprise takes to develop its human knowledge and skills, and thereby its competitive capacity. These measures are operationalised as the financial or time investments a firm makes in order to improve its competitive capacity by utilising different methods for in-house competence development or by acquiring the desired competence externally. The research approaches the issue of competence development in SMEs from an organisational perspective rather than an individual perspective.

7. For analysing how firms actually invest in competence development, this research will use the 'Competence Chain Model' based on Nordhaug's research. This model offers a basic approach for describing how firms upgrade their competence base, and includes three vital elements, which can be regarded as stages in a competence development process:

- Competence planning includes the relation to generic business goals and strategies and the process of defining actual and future competence gaps.
- Competence development, which represents the measures an enterprise takes in order to develop the competence status available within its in-house human resources. Competence development includes both formal teaching and learning methods (i.e courses) as well as informal/non-formal action-learning and on-the-job oriented methods integrated in daily work. These measures may include external-to-the-enterprise[178] and internal-to-the-enterprise[179] practices.
- Competence utilisation is defined as the way the organisation makes use of the investments in new or extended knowledge in terms of organisational design, specialisation versus despecialisation, incentive systems, employee participation, and the significance of transfer barriers.

8. Enterprises in general and SMEs in particular in Europe are paying an increasing attention to the issue of knowledge, skill and competencies as key factors underpinning their competitiveness levels. This importance is well reflected in the results obtained by the Leonardo CODE Survey. Thus, European manufacturing SMEs attribute a very high importance (7.7 on a scale from 0 -not important at all- to 10 -very important-) to those activities intended to upgrade the enterprise's knowledge and skill base as a key element for sustaining the enterprise's competitiveness.

9. This high importance, well shared amongst SMEs irrespectively of size, sector or country considerations, can be partially explained by the fact that very significant shares of the European SMEs suffer (or say to suffer) from 'skills shortages'/'skills gaps'. Thus, and according to the Leonardo CODE survey results, around four out of ten manufacturing SMEs admit to suffer from a shortage of skilled labour ('skills shortage'), whereas the need to upgrade SMEs'

[178] External-to-the-enterprise practices include those practices where resources from outside the enterprise are used for developing SMEs' in-house personnel. Examples include, for instance, visits to expositions/trade fairs, attendance to courses/conferences/seminars provided by external personnel, co-operation or study visits to other enterprises, reading of external information, etc.

[179] Internal-to-the enterprise competence development practices refer to those practices where internal resources available within the enterprise are used for developing in-house personnel's competencies. Examples may include courses/seminars provided by own personnel, on the job learning/learning in the daily work, in-house job /task rotation, meetings amongst personnel for knowledge exchange/quality circles, etc.

workforce's skills and competence base ('skills gap') is suggested by half of them. Interestingly enough, the problem of 'skills shortages' seems to be more present amongst the small enterprises in comparison to the medium sized ones (42.5% versus 37.4%). By way of contrast, 'skill gaps' are more present the larger the enterprises are, so up to 66.3% of the medium sized enterprises argue for a current need to upgrade the competencies and skill base of their workforce in comparison to 50.9% amongst the small enterprises. The 'skills gap' problem seem to be also particularly present amongst older and exporting SMEs, whereas the 'shortage' problem is particularly present amongst young and non-exporting SMEs.

10. According to the Leonardo CODE survey results, one out of two European manufacturing SMEs have a special person or group responsible within the enterprise for identifying current or future skill needs. Interestingly, this presence is strongly related to size and sector-related considerations, so the presence of this kind of person/group is much more common amongst the larger SMEs and amongst those SMEs in high-tech sectors.

11. Interestingly also, this presence of a special person or group responsible within the enterprise for identifying current or future skill needs seems to be particularly higher amongst those SMEs that are experiencing both 'skills shortages' and 'skills gaps'. This presence is also positively related with the enterprise's age and the presence of exporting activities within the enterprise, and especially with the economic situation of the enterprise (the better the situation the higher the presence).

12. The identification of current or future skill needs within SMEs is mainly the role of two groups, i.e., the enterprise's own management team and the owner/general manager (38.7% and 30.0% of the responses, respectively)[180]. Other persons/groups are less present, so in a 16.2% of the manufacturing SMEs this identification task is responsibility of a human resources manager/training director, whereas only in a 7.1% of cases the identification process is jointly conducted by a group formed by representatives of the management team and employees.

[180] Data only referred to SMEs with a person or group responsible of the identification task.

13. This importance of the owner/general manager seems to be particularly relevant amongst the smaller enterprises. Thus, up to 34.4% of the manufacturing small enterprises suggest this person to be responsible of the identification task, well above the percentage amongst the medium-sized enterprises (14.0%). The central role that owners/general managers carry out within the smaller enterprises, as well as the lowest presence of management teams in these enterprises, explain this result. By way of contrast, the importance of the management team or the human resources manager/training director is higher the larger the enterprises are, where this result reflects that larger enterprises adopt a more professional and specialised approach when coping with their competence problems. The available data also suggest that the identification task is particularly responsibility of the owner/general manager amongst the young (less than 10 years old) and the non-exporting SMEs, whereas the responsibility of the management team is more present amongst the older enterprises (more than 10 years old) and the exporting ones.

14. The Leonardo CODE Survey also provides information on the presence within the manufacturing SMEs of a number of formal human resources management tools related to competence planning. Basically, these tools are related to defined process(es) for the recruitment and selection of personnel, formal system(s) for evaluating the personnel training needs and, finally, written training plans. Around a 36.9% of the manufacturing SMEs have got a written training plan, whereas 34.1% and 32.7% of SMEs have got a defined process for the recruitment/selection of personnel and a formal system for evaluting the personnel training needs, respectively. All in all, manufacturing SMEs argue to have, on average, 1 out of the 3 suggested human resources management tools. As it can be seen, the presence of these tools is lower in all cases than the percentage of SMEs that argue having a person/group responsible of identifying skill needs. This result probably implies that for a large percentage of SMEs, these competence planning activities are carried out on a rather informal basis.

15. This presence of formal management tools related to competence planning shows a positive relationship with the size of enterprises. Thus, and whereas small enterprises have got on average 0.9 tools (out of 3), this ratio goes up to 1.7 amongst the medium sized enterprises. This enterprise-size related result reveals a lower degree of formality amongst the smallest enterprises. Meanwhile, presence of formal tools for competence planning purposes are also

positively related with exporting activities and with the existence within the enterprise of a person/group responsible of identifying current/future skill needs. Interestingly also, these tools are particularly present amongst the Dutch and French SMEs (1.2 tools out of 3 in both cases), followed by Austrian and Finnish SMEs (1.0 in both cases). By way of contrast, the lowest presence of these tools corresponds to the Spanish SMEs (average ratio of 0.8 out of 3).

16. The Leonardo CODE survey results confirm that manufacturing SMEs attribute a high importance to non-formal competence development methods for upgrading their in-house competence base and skills. Thus, and despite the fact that the largest share of manufacturing SMEs (up to 54.4%) suggest that both formal and informal methods are equally rated as relevant for them, up to 38.9% of SMEs argue for the effectiveness of informal methods in comparison to only 5.5% who argue for formal methods. Meanwhile, size considerations show that small enterprises are more in favour of informal practices than medium sized ones (40.7% versus 30.8%, respectively), whereas a larger percentage of medium-sized enterprises argue for the equal effectiveness of both formal and informal methods in comparison to small enterprises (62.1% versus 52.8%). Informal methods are also more prefered by the younger and the non-exproting manufacturing SMEs.

17. The development of the in-house personnel's competencies and skills can be gained by utilising a variety of different training and learning methods/practices, which may include both formal teaching and learning methods (i.e courses) as well as informal/non-formal action-learning and on-the-job oriented methods integrated in daily work. According to the Leonardo CODE survey results, the most valued practices for developing in-house competencies by manufacturing SMEs include on-the-job learning/learning in the daily work, visits to expositions/trade fairs and job/task rotation within the enterprise of the personnel. Other relatively well valued competence development practices include reading of information available in trade and sector magazines/publications, reading of information available in Internet and, finally, coaching/guidance activities for staff by other people in the enterprise. As it can seen, the competence development activities mostly valued by small enterprises are normally integrated in daily work.

18. From an enterprise size perspective, and despite the fact that both small and medium-sized enterprises identify both learning in the daily work and atten-

dance to expos/trade fairs as the mostly valued tools, medium enterprises are also able to identify a wider array of relevant practices (both external and internal) for developing their in-house competence base in comparison to the small enterprises. On the other hand, medium sized enterprises value each one of the suggested competence development practices on a higher rank than small enterprises, where it is possible to identify important differences in some of them. All these results suggest that larger enterprises are able to profit from a larger scope of relevant methods.

19. The Leonardo CODE Survey results also show that those manufacturing SMEs who believe that competence development activities are a key element for their competitiveness and those who suggest a need to upgrade their workforce's competence and skill base are able to identify a larger number of different methods that are relevant for them in comparison to those SMEs who do not share this view. The Leonardo CODE survey also shows that both SMEs engaged in exporting activities and those in good economic situation are able to identify a larger range of 'relevant' methods than their non-exporting counterparts.

20. Manufacturing SMEs regard a number of external-to-the-enterprise practices, i.e. practices where resources from outside the enterprise are used for developing SMEs' in-house personnel, as relevant for them. These activities of external competence acquisition and networking can be regarded as rational methods to compensate for their lack of own, in-house knowledge and competence, expanding therefore the limits set by the resources they currently control. In fact, such networks extend the boundaries of the organisation's knowledge and provide an external network of expertise where an enterprise can tap for ideas and advice on a wide range of subjects.

21. The external actors most relevant as sources of knowledge and competencies for the manufacturing SMEs are the enterprise's clients and suppliers, irrespectively of size, sector or country considerations. This result, confirmed by other pieces of research, shows that the customers and suppliers operating directly in the firms' value-processing chains represent the most important and frequent partner for small manufacturing enterprises when acquiring external competence. Other well-valued actors according to the Leonardo CODE survey results include competitors/business colleagues, consultants/accountants and, finally, the own recruitment of new external personnel with required new competen-

cies. Meanwhile, other actors (which can be labelled as more 'formal' and 'academic') are not regarded as that relevant for manufacturing SMEs, such as business/trade associations and universities/training, and especially R&D centres/technical experts and government/public agencies.

22. An enterprise size perspective shows that the rankings for the different suggested sources of external competence increases with the size of enterprises, which reveals that larger SMEs are able to profit themselves from a larger network of relevant sources of external competence in comparison to small enterprises. The Leonardo CODE survey results also show that those SMEs who point out the key importance of competence development activities for their competitiveness and those SMEs who are experiencing skills shortages/skills gaps are able to identify a larger network of relevant sources of external competence in comparison to the latter ones. This is also the case amongst those SMEs showing good business results, where this important result suggests a positive relationship between interaction with different external sources of knowledge and business performance.

23. The Leonardo CODE survey results point out that the occupational group mostly being benefited from competence development activities correspond to 'middle managers/technicians', irrespectively of the external or internal nature of the competence development practices. Meanwhile, the second more benefited occupational group from competence development activities depends on the specific nature of these activities. Thus, and as far as external competence development activities are concerned, this second group corresponds to 'directors and managers', whereas 'manual workers/operators' are the second mostly benefited group when internal competence development activities are taken into account. Meanwhile, the occupational group 'clerks/administrative personnel' is the group less benefited from both external and internal activities.

24. The previous results suggest that small manufacturing enterprises are characterised by a strong division of labour between staff on the 'blue-collar' level (manual workers/operators) and 'white-collars' (directors/managers, middle managers/technicians) in the contents and nature of their learning processes. Thus, 'white collars' are more oriented towards external source of competence whereas 'blue-collar' employees are more oriented towards internal sources. These differences can be explained by the different roles assumed by the different occupational groups.

25. The areas where manufacturing SMEs manifest a higher need for upgrading their knowledge/skill base are, in this order, 'sales/marketing' and 'engineering/manufacturing'). Other areas also particularly valued include 'language abilities' and 'personal skills' (i.e. communication, team-work, pro-activity, etc). By way of contrast, the areas regarded as less important by manufacturing SMEs include 'office work' and 'management/finance'.

26. An enterprise size perspective shows that, with the exception of these two last areas ('office work' and 'management/finance'), in the remaining areas it is possible to identify a positive relationship between enterprise size and the percentage of manufacturing SMEs suggesting a need for skill/competence improvement. From this result it could be argued that large SMEs are interested on a wider scope of issues, whereas smaller enterprises seem to primarily concentrate on topics that are 'close to their business'. Interestingly also, the SMEs who suggest a more urgent need for improvement in all the identified competence/skill areas are those ones who manifest a need to upgrade the competence and skill base of their workforce, those who are exporting in international markets and those who suggest to be in a bad or very bad economic situation.

27. The two most important barriers that manufacturing SMEs identify for engaging themselves in activities intended to develop the knowledge, skills and competencies of their personnel are organisational[181] and financial[182] ones, irrespectively of size, sector or country considerations. Other relatively important barriers include the problem of lack of motivation from the employees, the lack of enough public support for these activities (in terms of guidance, subsidies, fiscal exemptions, etc) and the risk that trained employees might be 'poached away' by competitors. Finally, other less important barriers include the unsatisfactory nature of existing sources of skills/knowledge, the lack of information on these sources or, finally, the fact that enterprises themselves have difficulties for assessing their own knowledge/skill needs. The Leonardo CODE survey results also show that the different suggested barriers are more relevant amongst those manufacturing SMEs experiencing a need to upgrade the competence and skill base of their workforce and amongst those SMEs experiencing difficult economic situations. This result especially applies to the two most important identified barriers, i.e. the 'financial' and 'workload' barriers.

[181] The fact that employees' workload makes these activities difficult to organise.

[182] The fact that available budgets for competence development activities are insufficient or the associated costs are too high for them.

28. The Leonardo CODE Survey also provides information on both the degree of formalisation of the available in-house knowledge, as well as the extent to what this in-house knowledge is diffused within the organisation. In this sense, and focusing on the degree of formalisation of the available in-house knowledge by manufacturing SMEs, the Leonardo CODE Survey results show that the presence of different tools for making this knowledge 'explicit' is very different amongst the different tools.

29. Thus, and taking into account the general management tools, 66.6% and 66.0% of manufacturing SMEs have got a quality management system and written manual(s) describing the tasks/activities of each working post, respectively, whereas only 48.2% and 40.0% of SMEs have a formal strategic plan and any ISO certification(s), also respectively. Meanwhile, and as far as the tools for managing their human resources are concerned, up to 80.0% of SMEs carry out meetings to inform employees on changes/developments about job/enterprise, whereas only 32.7% of SMEs have got formal system(s) for evaluating the personnel training needs and around 34% have defined systems for both recruiting personnel and evaluating the personnel performance.

30. Interestingly also, this presence of formal tools is directly related to size considerations. Thus, and focusing on formal management tools, manufacturing SMEs have got on average 3.4 tools out of the 6 tools defined[183], where small enterprises have got 3.2 and medium sized enterprises 4.3. Meanwhile, manufacturing SMEs have 2.7 tools out the 6 defined for managing their human resources[184], where again this size effect is present (2.5 and 3.6 tools amongst small and medium sized enterprises, respectively).

31. It is possible to identify important differences in the presence of these formal tools according to sectors and countries. Thus, electric/electronics, metal/machinery and chemical/plastics SMEs ahve the highest presence of these tools, as well as Dutch and Finnish manufacturing SMEs (especially in

[183] (i) formal organisation chart(s), (ii) formal strategic plan(s), (iii) written manual(s) describing the main tasks and activities of each working post, (iv) written manual(s) describing the productive standards and routines, (v) quality management systems and, finally, (vi) presence of ISO certifications.

[184] (i) defined process(es) for the recruitment and selection of personnel, (ii) formal system(s) for evaluating the personnel performance, (iii) formal system(s) for evaluating the personnel training needs, (iv) written training plan(s), (v) system(s) for collecting employees' suggestions related to work issues and, finally, (vi) meetings to inform employees on changes/developments about job/enterprise

comparison to the Spanish SMEs). Involvement in exporting activities seems also to have also a positive effect in the presence of formal tools, as well the economic situation of the enterprise (manufacturing SMEs arguing to benefit from a good or very good economic situation make more use of these tools in comparison to those SMEs in a bad or very bad situation)

32. Manufacturing SMEs positively rate (6.6 on a scale from 0-not disseminated- to 10-very well disseminated-) their degree of dissemination of relevant knowledge and information through the organisation. Small enterprises seem to have a better self-perception on this degree of dissemination (despite their scarcer use of formal tools) in comparison to medium sized enterprises (6.7 and 5.9 on the same 0-10 scale), as well as those SMEs with no exporting activities and the 'young' ones (those SMEs with less than 10 years old).

33. The largest share of manufacturing SMEs tend to prefer 'informal' (informal meetings, daily interaction) over 'formal' (intranets, manuals, internal newsletters) mechanisms for disseminating relevant knowledge and information within the organisation. Thus, up to 48.3% of SMEs prefer informal mechanisms in comparison to just 9.7% who have a preference for formal tools, whereas up to 41.8% argue for their equal preference of both type of methods. Small, old and well performing SMEs seem to be more in favour of informal mechanisms in comparison to their medium sized counterparts, whereas SMEs involved in exporting activities show a relatively higher preference for formal tools for knowledge disseminating purposes.

34. Around half of the population of manufacturing SMEs (51.7%) have got databases where relevant-to-the-enterprise knowledge, experiences and documents are stored for subsequent use. Medium sized enterprises, older, exporting and well performing SMEs are precisely the ones where this share is higher. The presence of databases is also particularly relevant in three sectors, i.e. electric/electronics, metal/machinery and chemical/plastics and amongst the Finnish and Dutch SMEs. In up to 94.2% of SMEs with databases these databases are periodically updated. Meanwhile, 68.7% of those manufacturing SMEs with databases point out that these databases are accessible through ICT-based system. This ICT-based accessibility is is more present amongst medium sized enterprises, old, exporting and well performing SMEs in comparison to their counterparts.

35. Only 23.4% of the manufacturing SMEs with databases say that these databases are accessible to all the enterprise's workforce, where the largest percentage (64.1%) suggest that these databases are accessible only to allowed personnel (including the management board). Food/beverage, wood/furniture and paper/print SMEs, together with the Spanish and Austrian SMEs, non-exporting SMEs and SMEs in bad economic situation show the highest percentage of SMEs for which their databases can only be accessed by the management board.

9.2. POLICY RECOMMENDATIONS

From a policy perspective, governments have to create an environment conducive to the acquisition and development of skills and competencies. These research results provide several possible suggestions with this purpose:

36. It is necessary to find a way to broaden the traditional concept of learning upon which most policy measures are based. Thus, a broader concept of learning requires to take into account the relationship between formal learning and the learning that takes place in workplaces, as well as the link between education & training and the labour market.

37. From this study's results it seems necessary to improve the public support to the SME managers for identifying the competence needs of their companies. This is particularly required for the smaller enterprises, where resources are more limited, both in financial, organisational and capabilities terms. Especially, imaginative formulas are needed to overcome the organisational barriers to competence development activities in SMEs.

38. In this sense, public programmes should aim to extend the array of external competence sources available and accessible for the smaller firms, enlarging their network of contacts and knowledge providers. Linked to this point, it is important to assure both that the curricula of these external sources is oriented

towards the special needs of SMEs, making sure at the same time that the market transparency is secured.

39. This research has demonstrated the importance of suppliers' and clients' for small manufacturing firms, and revealed that both groups are important as direct sources of external competence, and as brokers to other external competencies.

40. In spite of this, it seems necessary to strengthen the links with the academic knowledge sources (University, R&D centres,...), bringing them nearer the companies, improving the interaction and better meeting their expectations and needs.

41. Services that link training and counselling might be useful, starting with the identification of SMEs competence needs in a mid-term perspective and the definition of competence development plans.

42. From an internal to the company perspective, this in all probability means to devise new ways and channels for somehow formalising and recognising the non-formal knowledge and skills acquired by SMEs' employees through practical experience.

43. This would also help improve the quality of employment of SME employees, as competence development activities must be seen as part of the working conditions concept.

44. In this sense, competence development opportunities should be made available to all levels of employees within SMEs (not only to white collars or to already highly qualified employees) and to all types and sizes of SMEs. Social agents might have an important role to this respect, for instance including competence development activities within collective agreements.