FINAL REPORT OF THE RESEARCH PROCESS AND RESULTS

(Deliverable 9)

TSER project: Small Business Training and Competitiveness: Building Case Studies in Different European Cultural Contexts.

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Consortium of partners:

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Abstract

The objectives of the project research that stem from the original proposal were to identify those learning processes that lead to increased competitiveness of the small and medium sized companies analysed and, secondly, to explore the relationships of the identified learning processes with the issues of SMEs competitiveness, the impact of cultural and institutional contexts and the policy implications for educational, training and SME policies.

Project results are based on the elaboration of 24 cases with data collected from SMEs in four different European countries. The literature of Organizational Learning draws attention to the scarcity of empirical work done in this field. This project intended precisely to start to cover this need.

In the course of our exploratory research we have seen the importance of networks to SME learning strategies, the relevance of the founder as catalyst of learning processes, the trade-off between maintaining creativity and the standardisation of work processes when SMEs grow in size, and how institutions relate to SMEs as learning triggers and providers of constraints and resources. The study also provides policy implications for educational, training and SMEs policies.

1. Executive Summary

The objectives of the project research that stem from the original proposal were mainly two:

First, to identify those learning processes that lead to increased competitiveness of the small and medium sized companies analysed and,

Second, the relationship of the identified learning processes with the issues of SMEs competitiveness, the impact of cultural and institutional contexts and the policy implications for educational, training and SME policies.

In that vein, we were interested in the actions of managers as a first step to understand their processes of sense making when faced to new situations. Broadly, we conceived learning as the process of making meaning of experience. This included the common cognitive stages of information acquisition, elaboration, dissemination and storage (Huber, 1994 ; Dixon, 1996), but it also added a more contextualised and social view of the learning process since, as Easterby-Smith recognises, 'data have no significance in their own right until people determine what they mean' (Easterby-Smith and Araujo, 1999). Therefore, learning processes had to be described in their own contexts and this is what we did through the case studies, of which we will talk later on. At the same time, learning had to do not only with knowledge but also with attitudes and emotions. Moreover, learning was very much social and it was influenced and influenced the culture of the organization or the subculture of a specific group within the company.

1. Description of the learning processes found in multi-country case studies

Regarding the first objective, it was obvious that competitiveness in the firms analysed was not only fruit of the capacity of these firms to learn. However, we were interested in identifying those conditions or factors that enhanced the learning of this firms because their ability to learn was very often their main competitive advantage in front of permanent changes in the environment. As we will see, some of the learning processes identified were reactive to changes in the environment while others were initiated inside the firm before the environment made them necessary.

Each school adopted its own analytical perspective. These different approaches help one understand learning in SMEs from various perspectives that enrich the final conclusions and

recommendations arising from this project. All partners looked at learning in their specific contexts and not merely as 'abstract cognitive' processes. A summary of the approaches for each partner are showed below:

1. The Spanish research group focused strongly on the influence exercised by entrepreneurs in organizational learning processes. The researchers describe two learning patterns in the studied SMEs in the light of variables such as the founder's background and motivation, relationship with customers, relationship with the environment, how well various management perspectives within the organization dovetail, and so on.

2. The Austrian research group emphasizes the role played by the dominant coalition in the learning process and thus focused on the relationship between power and learning in an organizational context. They also describe the role of 'communities of practice' in those organizations and how the dominant coalition can find it difficult to take the learning of these sub-cultures on board.

3. The Italian research group looked at learning processes linked to innovation projects in SMEs. They identified variables which help understand some of the reasons why innovative projects succeed or fail.

4. The Norwegian research group stressed the role played by institutional agencies in the learning processes of SMEs. This approach is particularly relevant in the Norwegian context.

Based on this vision of learning as a social process, we agreed on a theoretical frame which was broad enough to grasp all the different nuances of learning in different contexts. This perspective was linked to contingency theory. We described the different elements that were part of learning. These elements were the following : context, actors, learning process, outputs and outcomes. The main ideas found accoriding to the themes sutudied were:

1. Contextual factors

In the contextual analysis, we have identified four main findings which appear in the cases conducted in different countries.

a) When SME start-ups become successful, organizations tend to grow very quickly in order to cope with increasing demand. In order to handle this growth, organizations need to establish new

communication channels and to define clear roles.

b) SMEs have to learn how to deal with this growth while maintaining their creativity and ability to innovate – assets which tend to be based on informal communication among company staff.

c) There is a clear trade off between company growth and management's need to hold the company reins. In one case (Ströck) The founders, who previously managed the company in a tmuch more informal way, are having to come to terms with the advent of middle management. The case of Aiwell in Norway provides similar lessons. In this case, the founder wanted to maintain his control of the company's expansion and began creating manuals and educating his workforce to deal with the rapid changes taking place.

d) The importance of founders and key workers having closely worked together. This experience helped trigger learning in some of the SMEs studied. In Ticon, Pulmoned and Escola, one can see how core members of the firm had already worked together before they set up the company. This greatly facilitated company learning since considerable consensus on important issues had been reached before the firm was even set up.

e) Related to the previous point, the Ottakringer, Ströck, Lomo, Escola, Vins cases and most of the Italian studies reveal how the founders or General Managers' values and ideas influence the other members of the firm and enhance co-operation and learning all round.

f) Lastly, changes in a company's legal framework (as in the Ottakringer, TIV, Escola and Vins cases) can also influence learning processes as a way of coming to terms with a new set of circumstances.

2. The role of Actors:

a) The four national analyses in this deliverable underline the central role played by the entrepreneur -or the dominant coalition, in the Austrian cases- in the learning processes. Examples of this are furnished by the Futureplast, Petrolnica, Parma, Aiwell, Cresto and all the Spanish cases bar one (Metallica is the exception here, given the key role played by middle managers and engineers in creating new knowledge).

b) In the Italian cases, the entrepreneur provides insight, creativity, a certain degree of technological competence and thorough knowledge of the market. He usually hires a technical

expert or 'scientist' to help provide innovation. This technical partner not only contributes technical skills and know-how but, more importantly, forges contacts with key external agents. This can also be seen in some of the Spanish cases (Infogestión, Musexpo).

c) The Spanish cases also furnish examples of founders who embody the company's experience and knowledge of its products. As we shall see, the learning pattern followed by these companies is different. Here, the main challenge the entrepreneur faces is how to transmit this knowledge to the company staff.

d) In the Austrian cases, the dominant coalition plays the main role in determining learning. The dominant coalition can be defined as the group of individuals who are nominally in charge of running the company. This coalition is usually supported by a group of experts (e.g. TIV, Ticon, Ströck) which performs special tasks in the organization. However, conflict sometimes arises between these experts and the management team. This is very clear in the case of TIV (an Austrian private TV station), where a struggle between different programme teams gave rise to sub-cultures within the company. The dominant coalition in TIV responded to this in-fighting by attempting to exercise control over the whole production process.

3. Salient learning processes

a) The ability of SMEs to frame a specific problem also has a considerable bearing on the innovation path taken. This is an observation borne out by several cases in different countries.

b) Company founders often have an intuitive grasp of unfulfilled market needs. This can be seen in all the Italian cases as well as three of the Norwegian ones (Aywell, Syslab and Proserv). In all these cases, it was the founder who learned about the market's needs and formulated the problem which the company's technical experts subsequently helped solve.

c) Several cases also reveal how important it is for SMEs to control the core knowledge which provides them with their competitive edge. In the Austrian cases, the dominant coalition is the actor which decides what should be learned by the organization and what knowledge is superfluous. The Italian cases show how entrepreneurs' involvement in innovation is crucial to success. If the founder does not follow up the work of his technical experts, he loses control and may well end up with a result which proves unmarketable.

d) Another common feature of the cases is the ability to learn from mistakes. In the Italian

companies, experiment provides the key to innovation. Constant trial and error provides the fine honing required in reaching a solution. The Norwegian analysis emphasizes the importance of the concept of 'bounded rationality'. This analysis states that beliefs regarding what 'works' often prove too limited or just plain wrong because SMEs seldom have enough knowledge and resources to get things right the first time round.

e) In several cases (Ströck, Microalgae and Vins) we found examples of pro-active learning processes which are not triggered by environmental changes. A case in point is the Ströck product innovation policy. The Austrian research team discovered that the company's management team goes out of its way to visit other countries in order to pick up new ideas.

f) The importance of networks to SME learning strategies. Sometimes SMEs anticipate market trends by taking part in institutional networks (e.g. Ottakringer and its relationship with a large Austrian brewers' association). Informal networks are also relevant to SME learning. For example, SMEs in the study found useful collaborators through informal networks (e.g. by attending Trade Fairs or informal meetings with suppliers, consultants, etc.).

4. SMEs Learning Output:

a). In the case of start-up firms (e.g. Ticon and Cartoon), one of the main outputs of the learning process is the creation of an organizational structure which cuts down resource wastage and makes internal communication more efficient.

b) The development of new products by combining existing technologies. Many learning processes analyzed in the cases are linked to the development of innovative products (e.g. Polti, Proserv).

c) Finally, the creation of knowledge concerning external agents is also a key issue. SMEs find ways of interacting with a range of suppliers, freelance professionals, governmental agencies and clients. The rapport involved is often highly conducive to learning.

2. Implications of learning processes: contextual factors, competitiveness and policy recommendations

2.1. The role of contextual factors in shaping the learning processes

The analysis was driven by institutional theory. It looks at how institutional environments affect learning processes in organisations in the different European contexts where the selected companies operate.

Several reasons led us to choose an institutionalist approach. Moreover, we feel that our research has benefited from this perspective because it allows us to link the results of the cultural analysis with other parts of our project. Because institutions help shape the environment in which companies operate, identifying the way institutions affect organisational learning processes enables us to explore the relationship between competitiveness and learning processes and helps us make recommendations for policy makers.

The main findings are summarised below:

a) Institutions as learning triggers

1. In the research we have seen how trust facilitated increased transfer of information which in turn enabled companies to learn from other companies, which again lead to increased organizational learning.

2. The perception of potential problems or opportunities triggered a search for either solutions or ways of taking advantage of newly identified opportunities.

b) Institutions as providers of constraints and resources

1. Norwegian cases show how various agencies provided resources for the marketing and sale of new products. Other institutions provided advice on who to contact and where to apply for which grants. Institutions providing resources were not necessarily public. While resources may have stimulated learning, they may have also inhibited it by limiting the search for alternative solutions.

2. We have seen how Institutions influenced learning processes by affecting organizations' attention span and resource allocation. In order to satisfy normative and regulatory demands from institutional environments, organizations concentrated on certain parts of the environment at the expense of other parts. As an example, governments focusing on internationalization in some cases prevented companies from pursing domestic learning opportunities.

3. Other resources come from formal and informal networks. Contacts often stemmed from chance encounters, but on other occasions, some of the companies (e.g. Metallica) formally applied for funding of research projects that involved the participation of other companies,

university departments, and private institution. These networks influenced learning processes, increasing motivation to join in projects and creating a space for sharing information and experiences. The institutional context made this possible formally by providing financial resources that encouraged participation in networks and informally by creating communication channels that facilitated contacts.

c) Institutions and the imposition of institutional standards

1. We have seen how pressures to conform to institutionalized certification standards affected both how and what organizations learned. For instance, pressure to meet the ISO 9001 standard caused companies to emphasize explicit, formalized knowledge at the expense of tacit, informal knowledge. The effect could be described as a bureaucratization of learning.

2. Organizations consist of institutional elements (Meyer & Rowan, 1977). As they grew older, the companies interviewed adopted more professional organizational structures in order to create legitimacy. These structural elements can be seen as standards. Formal, abstract forms of knowledge were to replace tacit knowledge. The attempt in some cases (e.g. FunTV) was not fully successful as corporate actions were for the most part based on tacit knowledge.

d) Institutions as facilitators of communication and exchange

1. We found that institutions can help create, develop and perpetuate common interpretive schemes enabling the transfer of tacit knowledge between companies. In some cases, industrial networks created common interpretive schemes as well as a normative framework that enabled companies to learn through and from other companies. This meant that the cluster as such could be seen as a learning system which enabled organizations to benefit from the learning in other institutions while at the same time specialising in the type of learning that they themselves were best at. The idea is one of division of labour resulting in more efficient learning processes. Industrial clusters thus affect both *how* organizations learn and *what* they learn.

2. Based on the analysis of the cases, we have seen that institutions may facilitate exchange by offering a common normative framework and the possibility of sanctioning deviations therefrom, thus paving the way for an institutional-based trust.

3. In the same vein as the last point, institutions can also facilitate exchanges by reducing the risk perceived by companies that might be involved. An example would regulatory agencies and developed venture capital markets. These institutions could reduce the perceived risk associated with inviting in investors from outside the company.

4. We have seen how industry associations affect learning in organizations (e.g. Metallica, Ottakringer). Companies have different perceptions of what these common spaces offer them. Some prefer to go their own way and only participate in industry social life when specific issues are at stake. In contrast, other companies, like Med trade (Austria) are seriously seeking participation. Many associations made up of researchers, physicians, pharmacists and members of medical equipment companies have been established for years whereas others are newly founded. As institutions arrange contacts and enable information exchange, it is crucial for a new company to find ways to access these connection networks.

2.2. Learning processes and competitiveness

We considered interesting exploring the relationship between learning and competitiveness for three reasons. In first place, there is a strong link between innovation and competitiveness. Innovation at firm level can be seen as an important element in competitive advantage that requires strong learning skills. In second place, there is a link between competitiveness and organisational change; learning has been linked to the ability of organisations to change their structure, systems, and culture. Lastly, learning has been related to superior skills in the interpretation of a fast growing environment. Taking advantage of environmental stimuli, whether opportunities or threats) has also been mentioned as an important competitive advantage

a) Product Innovation

1. We saw the important role of the main decision-makers in SMEs in initiating, co-ordinating and motivating the innovation process. Organizations often learn about potential new innovations from the web of agents with whom they usually deal

2. Turning to the acquisition, integration and storage of knowledge needed for a project's success, we saw how effective management of technical staff not only enhances technology-linked skills and tacit knowledge but, more importantly, provides contacts with key external agents.

3. Learning and innovation are often triggered by everyday experience, by the recognition of an unsatisfied need detected in the course of the firm's habitual activity. We have seen this in the cases studied where there has been product innovation processes. Like Gibb (1997), we feel that it is in the daily interaction with agents that opportunities arise.

4. In addition to accumulated experience, learning from mistakes was important to the success of some of the firms studied. Some cases have revealed examples of technical innovation projects that did not produce the expected results or took much longer than originally anticipated.

b) Learning processes and instances of organisational change

1. Small to medium size is changing either to a divisional model or a structure by functions. The structural changes are affecting the management systems in place as the firms need to exercise control and co-ordination.

2. The creation of formalized organizational processes allowed in some cases knowledge and informal procedures to become explicit through routines and formalized processes, increasing the firm's common knowledge. At the same time, however, it led to rigidity, and several of the organizations studied have taken steps to maintain or enhance employee creativity and ensure continuation of the rapid decision making that is more common in smaller and earlier phases.

3. In some other cases, the creation of a formalized knowledge base served to integrate new employees because it made embedded organizational knowledge explicit. On the other hand, not all of firms studied took the same path in terms of formalizing their structures formalisation path (Aiwell, Vins). Some firms remained small, enabling them to maintain direct and informal contacts and decision making

4. To strike a balance between communication rigidities caused by formalisation and the need to preserve employee motivation and creativity, firms studied undertook several mechanisms for increased motivation. Not all measures intended to foster employee initiative worked. In the case

of Ottakringer employee participation in several motivational schemes was enforced. The Ottakringer case narrates one such initiative, a "blackboard campaign" for new ideas, which was abandoned as the result of the strong hierarchical organization and the limited extent to which employees' suggestions were adopted. This illustrates that it takes more than spousing theories (Argyris) to change certain performance habits.

c) Learning processes and environmental issues

1. We have seen cases of active/reactive firm stance when the macro-environment can be construed as posing a threat to the firm. Some companies, like Musexpo, reacted to the threat by adapting their organizational structures to the new conditions. In other cases, like Metallica and Cresto, recession provoked a reduction in their product ranges These are examples of reaction to new conditions. We found other cases in which the firm (Vins), confronted with changes in the legal framework, took the initiative in bringing the changes to a favourable outcome

2. The type of learning in production processes may vary depending on whether the associated technology is widespread in the industry. Such knowledge usually becomes available through production standardization as the industry matures. When the industry matures technology is available for product development. In these cases, there are available production processes that can be accessed through suppliers, or through grafting, vicarious learning, industry monitoring, etc

3. When firms detected a clear opportunity such as a product innovation possibility that required large resources, they would embark on discovery-type activities and explore the rewards, through formal searching

2.3. Policy implications

SMEs play a very important role in knowledge creation and knowledge storage because they generally allow entrepreneurs and managers a great deal of freedom of action. Adopting policies

which unleash SMEs' full potential to learn, create and store knowledge will lead to greater wealth and better jobs.

Our recommendations focus on aspects relating to our study, learning processes in SMEs and the relationship between training and competitiveness. No recommendations have been made regarding women's opportunities or unemployment policies simply because these lie beyond the scope of this project.

Policy makers may influence knowledge creation in SMEs through policy implementation. We focused on training and educational policies as they are closely linked to learning processes and knowledge creation and storage. Because we focus on SMEs we will also address SME policies which further these aspects of learning. As the White Paper on Education and Training states (1995), both issues are very closely related. Accordingly, some of our recommendations are difficult to classify because they are related to two or more different policies.

a) Training policies

1. Ways should be found of making courses much more experience-based and tailored to the particular needs of the firms in which they are taught. Courses where workers from various SMEs have to cope with the same workplace tasks and problems should be encouraged. The involvement of employee's associations in such initiatives should also be fostered.

2. Encourage EU-funded SMEs to join employer's associations and Chambers of Commerce in order to create industry-specific training courses.

3. Policy-makers should promote training programmes between universtities and SMEs to create new training programmes to foster specific competencies for innovation enhancement.

4. Promotion of cross-skilled programmes for SMEs in innovative markets with new processes that combine cross-functional skills.

5. In SMEs with low training levels, promote courses that maximise network opportunites. Also, promote "commodity training" since it increases the future employability of workers.

b) Educational Policies

1. Policy-makers should support collaborative projects involving customers, SMEs and Universities in order to create “relational capital”

2. Promotion of University-level exchange programmes between technical and business schools, with a focus on enterpreneurs in the start-up phase to increase likelihood of survival/success.

3. Encourage business schools and Universities to mentor enterpreneurs, with an emphasis in personalised, practical education in the implementation of start-up business plans.

c) SMEs policies

1. Support the development of venture capital funding markets for high tech SMEs as a way to increase funding possibilities and also to foster knowledge creation.

2. Facilitate the relationship between SMEs and Public Agents through the clarification, simplification and publication of main policy guidelines and objectives, further promoting the use of IT tools for communication pruposes with SMEs in Europe.

3. Policy-makers should create the contextual conditions to ensure trust in market relationships to facilitate the development of knowledge, the relationship among organisations and individuals and the creation of networks with strong knowledge storage capabilites.

4. Promote the role of “pionnering clients” among Public Institutions to facilitate access to financial assistance and consulting services to SMEs.

2. Background and objectives of the project

Ours is a project that focuses on the improvement of European SMEs. As stated in annex 1 of the Proposal submitted originally for the project, the aim has been to "identify learning processes that lead to increased competitiveness on Small and medium-Sized Enterprises, and to describe how these learning processes are shaped in different European coultural contexts."

The importance of SMEs as contributors of employment and the production of goods and services in the next years is decisive. The number of non-agricultural SMEs in Europe-19 is around 20 million, employing an estimated 117 million people. Labour productivity for the period 1988/2000 has been 2,1% annual growth compared with 2,8% of large enterprises (data taken from the 6th. Report SME European Observatory, 2000). The possibility for SME enterprises to increase their competitiveness and contribute furhter to employment generation within an increasingly globalised context, depends on their ability to combine flexible production with the continual innovation of products and production processes. In order to achieve this firms must learn to compete in a fast changing environment. It is in this context that our research acquires importance.

We do not assume a direct causal relationship between learning and increased competitiveness. Enhanced competitiveness is the result of many factors, of which the ability to learn internally and from environment stimulus are both important.

We have focused on the description of learning processes, as we have found them in an exploration effort of 24 SMEs in four different European countries: Austria, Italy, Norway and Spain. This has been the main effort of our research and, as such, occupies the greater part of section 3 relating to the scientific description of theproject's results.

In our endeavour we devoted the first three months of the project to the review of the relevant literature. This effort allowed us to come up with a solid conceptual based shared by the four partners in the project. In addition, we chose not to follow any particular model that could constrain our findings. On the contrary, to ensure maximum openness in the discovery and exploration of the learning patterns, each partner chose the conceptual underpinnings to analyse the data, with a common body of rules and norms agreed by the whole research group.

In addition to the main objective of describing the learning processes, we set out two additional objectives for the research. Since ours is an academic partnership between four academic

institutions from different European countries we included the identification of cultural and non-cultural aspects to gauge their effect in the learrning processes. The other objective was to explore the relationship of learning processes and competitiveness.

In deliverable number 5 "Learning Processes and Cultural Contexts" we set out to explore the effects of culture from an institutional perspective. In deliverable number 6 "Improving SMEs competitiveness through learning processes" we explored the second issue. A summary of the findings of both objectives can be found in section three of this report.

In addition to these thematic objectives we are aware of the importance of the topics of learning and training as tools for policy-making. In order to respond to this need we have also included deliverable number 7 with a set of recommendations for policy makers in the areas of education, training and general SME policy.

Finally, as a contribution to the academic community we have prepared two deliverables, 8 and 8 A, in which we have collected, ordered and edited the collection of written cases from our research. Deliverable number 8 is a collection of teaching cases that can be used for pedagogical purposes. Deliverable number 8 A is a collection of the remaining cases that can be used either for academic purposes or as secondary data for further research in the area of learning organisations and European SMEs.

3. Scientific description of the project and methodology

In the first par of this section we will describe the analysis of the research carried out during the life-time of the project. We will first outline the scientific objectives of the project. Secondly, we have analysed the learning processes that emerged from data analysis in the four countries. In third place, we have summarised the learning processes explored by each of the individual partners in their countries. In the second part we have explained the methodology used to accomplish the research objectives.

3.1. Scientific Findings

The objectives of the project research were mainly two. The first one was to identify those learning processes that lead to increased competitiveness of the small and medium sized companies analysed. The second one was to describe how these learning processes were shaped in different European cultural contexts.

Regarding the first objective, it was obvious that competitiveness in the firms analysed was not only fruit of the capacity of these firms to learn. However, we were interested in identifying those conditions or factors that enhanced the learning of this firms because their ability to learn was very often their main competitive advantage in front of permanent changes in the environment. As we will see, some of the learning processes identified were reactive to changes in the environment while others were initiated inside the firm before the environment made them necessary.

Topics linked to learning have been extensively treated in the literature during the last ten years or more. This project was not conceived neither to test any of the theories that appear in the literature nor to produce new theories based on previous ones. The objective of the project was much more limited in scope and, at the same time, it was somehow more ambitious. What we did was to explore the concepts that these different theories refer to (such as types of knowledge, levels of learning and so on) in the light of the fieldwork. As we have stated somewhere else (see deliverable 2), the literature of Organizational Learning draws attention to the scarcity of empirical work done in the field (Easterby-Smith, 1997 ; Tsang, 1997, Gibb, 1997; Huber, 1991, Easterby Smith and Araujo, 1999). This project intended precisely to start to cover this need by focusing on the analysis of the learning processes that we identified in twenty-four small and

medium sized companies operating in four different European countries.

Our research focused thus on the study of small and medium-sized companies. This choice allowed the analysis of learning processes in individual managers, groups and small corporations, and it avoided the complexities and constraints that the structures of large organizations introduced in the subject. So, the research questions, methods and results cannot be immediately generalised to large companies, which require more complex approaches. Small and medium sized companies were chosen as well because of their importance in the European economy.

In each company, the research focused on the development of a specific activity, such as an innovation of products, processes or services, a new experience in international markets or networks and similar kinds of actions. We generically called them *new processes* or *innovative activities* with the idea that this terminology normally excluded routine activities. Managerial innovations had two relevant properties for our research. On one hand, they were important for European economic and social development. On the other hand, they were 'good places' to look for instances of learning processes within these companies.

In order to grasp these learning processes, we first reviewed all the literature on Organizational Learning (deliverable 3 was the main result of this review). From the literature, we obtained a group of relevant concepts that we used to describe these learning processes. We wanted the available literature to help us become 'informed researchers' when carrying out the different interviews, which were to become the main basis of our fieldwork. These concepts were afterwards enriched with the results that started to come up from the fieldwork. Thus, although the research process was initially conceived in a linear way (conceptual and methodology framework, fieldwork, analysis of results and so on), we soon realised of the need to work in a more iterative or cyclical way. As we analysed data from the fieldwork we went back to refine the concepts that we had found in the literature. We started to explain these concepts with specific instances. For example, when talking about the 'tacit knowledge' of the wine maker. We could describe in the case study what 'tacit knowledge' meant in the context of the case and in this vein we contributed to elicit a difficult concept. At the same time, we started to see relationships between concepts that appeared in the literature on Organizational Learning and other ideas that were linked to other management areas such as the study of entrepreneurship or institutional theory. These relationships (e.g. the fact that the previous knowledge that the entrepreneur brought to the firm was linked to the learning pattern followed afterwards by the company) were worked out from the data. In this way we could go back to the literature and review some of the

literature on entrepreneurship. Once we had new concepts to work with we went back to the data, and so forth.

Obviously, the fact that the work described here has been carried out by four different groups of researchers from four different management schools in four different countries has made the first stage of the project (building a conceptual and methodological framework) more difficult than it would have normally been. At the same time, though, the debate that generated this first stage between the partners helped the group to get to know each other better and, in a more practical sense, it helped to develop a conceptual framework which was wider and flexible enough to avoid losing relevant information during the fieldwork stage. This was of key importance if we take into account that our project had a clear exploratory aim and that it did not intend to prove any hypothesis. At the same time, as we will see, this was linked to the qualitative research methodology that we chose.

In one of the very first meetings we agreed on some basic issues. The first one was that we were not studying or considering learning only as a change in behaviour. Change in behaviour was a potential result of learning in the short or long term but it had to be distinguished from the learning process. Although in our research we concentrated on the study of change of behaviour required or produced by innovative activities, our approach was not behaviourist but interpretativist and phenomenological. In our project proposal we claimed that learning had a mental dimension and that it was possible to have some knowledge about the intentions and the subjective experience of managers. We claimed as well that this knowledge and intentions could be related to observable physical actions.

We were interested in the actions of managers as a first step to understand their processes of sense making when faced to new situations. Broadly, we conceived learning as the process of making meaning of experience. This included the common cognitive stages of information acquisition, elaboration, dissemination and storage (Huber, 1994 ; Dixon, 1996), but it also added a more contextualised and social view of the learning process since, as Easterby-Smith recognises, ‘data have no significance in their own right until people determine what they mean’ (Easterby-Smith and Araujo, 1999). Therefore, learning processes had to be described in their own contexts and this is what we did through the case studies, of which we will talk later on. At the same time, learning had to do not only with knowledge but also with attitudes and emotions. Moreover, learning was very much social and it was influenced and influenced the culture of the organization or the subculture of a specific group within the company. This contextualised vision

of learning also helped us to deal with topics such as tacit knowledge and see how very often broader organizational learning was the result of tapping this tacit knowledge into a explicit form available to all the organizational members (Nonaka, 1991 ; see as well the example of the the Product Design Department at Metallica -Spanish case- or the subcultures of FunTV -Austrian case-). The case of Metallica was a clear example of the ability to formalise informal learning without killing or stiffing implicit knowledge whereas the case of FunTV exemplified the difficulties that top management encountered when trying to do the same because of subcultures resistance to change. This social view of learning also helped us to see how politics played a relevant role as well in defining learning processes in organizations (most of the Austrian cases are good instances of this issue through the analysis of the so-called dominant coalitions in organizations).

The idea that learning was highly contextualized was initially identified through the literature review but it was later confirmed in the fieldwork stage as we saw how different contextual factors in the macro and micro environments of the organizations were triggers that started different learning patterns in each organization. Moreover, as we have already mentioned, our project was exploratory. We tried to show and describe more than to build a theory. We obviously traced paralelisms when necessary, but out aim was not to come up with a general theory of learning. As we will see when describing the results of deliverable number 5, this micro and macro environments were at the same time influenced by the broader national culture environments.

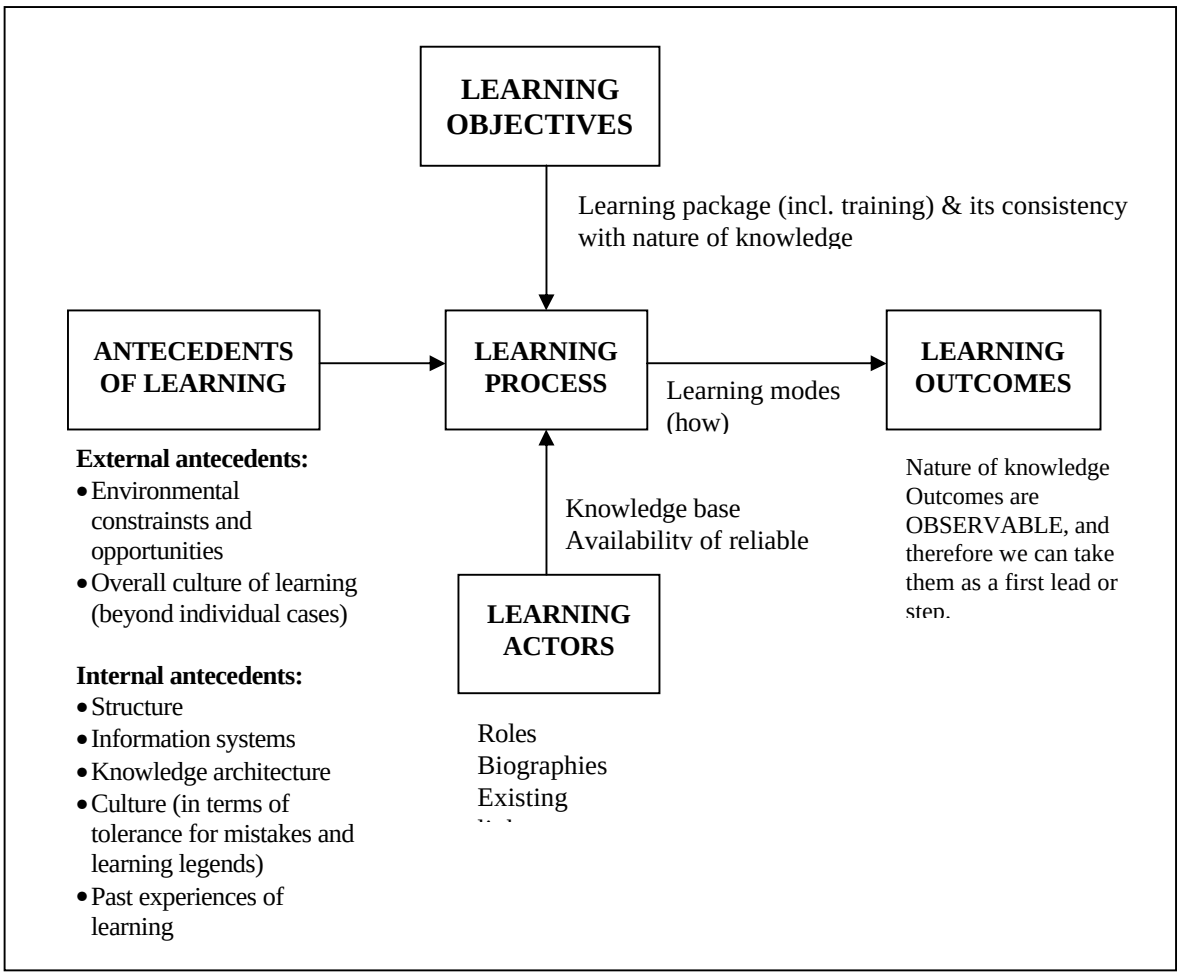
A very relevant result of the study confirms as well the idea that learning in small and medium sized companies is much social and influenced by contextual variables. This result is that all the companies that experienced learning processes which increased their competitiveness were learning very much out of networks that fell out of the boundaries of the organization. This was very clear in the case of companies that were very good at innovating. The sources of learning identified often came from clients, suppliers, legal authorities, experts in universities and even competitors. Those companies that were good at acquiring information from external networks -such as Metallica- were also good at conceiving their own organization as a network in itself, caring very much for interdisciplinary work and fluent communication across boundaries.

This fact was already stated in deliverable number three. We said there that ‘a final line of research in situated learning is that of networking (Tsoukas 1996, Spender 1989, Gibb 1997). Some authors have emphazised that just as different communities within the organization have

their own language and world view and their own way of learning through activity it is possible that this is also the case on an interorganizational level. Organizations have been said to be 'communities of communities'. In the same vein, industries can be regarded as communities of organizations, each one having its own type of particular discourse and each one enacting the environment in a certain manner. Consequently, interorganizational learning seems to be as relevant as organizational learning, especially taking into account the increasing globalization of the economy and the interdependency of industries'.

This idea has, as we will see later on in this report, valuable implications for policy makers because they can promote and give support to interorganizational work. In the first stage of the project, and based on this vision of learning as a social process, we agreed on a theoretical frame which was broad enough to grasp all the different nuances of learning in different contexts. This perspective was linked to contingency theory. We described the different elements that were part of learning. These elements were the following : context, actors, learning process, outputs and outcomes.

Some relationships among elements in learning processes



Context is defined in the model as the antecedents that are the basis for the learning process. They represent both the triggers and the settings for organizational learning processes. Learning can be motivated -as ilustrated in the case studies of deliverable number 8- by a wide range of contextual factors. We can quote here a change in legal regulations, an economic downturn, changes in the industry due to the entry of a new competitor or a new technology, or even internal chages in the structure -growth- or the culture of the organization.

Organizational learning as a complex phenomenon can have different agents such as individuals, groups, organizations themselves or networks. Depending on the actors, the scope of the learning process outputs and outcomes will vary.

In the learning process itself we identified the type of learning that was taking place -single and double loop learning, formal and informal- and also the types of knowledge associated with the process.

As stated in the deliverable number 4 ‘a major problem of this model is how to explain the transformation from output to outcome. In contrast to output that refers to the immediate result of learning processes, such as changed routines, theories in use or action-outcome-relations, outcome is the further implication that results from the output (e.g. competitive advantage, efficiency, adaptation to the environment)’. Deliverable number 6 treates this issue more in depth and tries to show the relationship between learning and competitiveness as seen in the cases.

Following what it was stated in deliverable number 4, ‘for our purpose, organizational learning is defined as a variety of continuous processes of, between and in organizations, which lead to a change, development and generation of knowledge affecting organizational elements such as structure, strategy, culture, etc’.

This model has the advantage of being ‘flexible’ enough to describe a great variety of learning processes that very often take place simultaneously across or within organizations. Besides, the model helped the partners to compare their results on the same basis ; thus, all partners looked in the cases for the antecedents, the agents, the process and the outputs and outcomes of learning in the different organizations.

The model allowed as well that each partner adopted its own analytical perspective. The following section is an extract from deliverable number 4. Hereby we explain those results that

were common in the research work of the four partners. All these results were fruit of the analysis of empirical data which was summarized in the case studies.

3.1.1 Learning processes that emerged from data analysis in the four countries

Each school adopted its own analytical perspective. The Spanish research group focused strongly on the influence exercised by entrepreneurs in organizational learning processes. The researchers describe two learning patterns in the studied SMEs in the light of variables such as the founder's background and motivation, relationship with customers, relationship with the environment, how well various management perspectives within the organization dovetail, and so on.

The Austrian research group emphasizes the role played by the dominant coalition in the learning process and thus focused on the relationship between power and learning in an organizational context. They also describe the role of 'communities of practice' in those organizations and how the dominant coalition can find it difficult to take the learning of these sub-cultures on board.

The Italian research group looked at learning processes linked to innovation projects in SMEs. They identified variables which help understand some of the reasons why innovative projects succeed or fail.

The Norwegian research group stressed the role played by institutional agencies in the learning processes of SMEs. This approach is particularly relevant in the Norwegian context.

These different approaches help one understand learning in SMEs from various perspectives that enrich the final conclusions and recommendations arising from this project. All partners looked at learning in their specific contexts and not merely as 'abstract cognitive' processes.

The four contributions follow the same structure. First, contextual factors influencing learning processes are described. Second, the analysis focuses on the learning actors identified in the cases. Third, learning processes are described and case study examples given. Finally, each partner analyzes the immediate results or outputs of the learning processes identified.

a) Context

In the contextual analysis, we have identified four main findings which appear in the cases conducted in different countries.

It has been seen how the issue of company growth in SMEs greatly influences the learning processes in these firms. When SME start-ups become successful, organizations tend to grow

very quickly in order to cope with increasing demand. In order to handle this growth, organizations need to establish new communication channels and to define clear roles. SMEs have to learn how to deal with this growth while maintaining their creativity and ability to innovate – assets which tend to be based on informal communication among company staff.

The Ströck, Lomo, Aiwell and Cartoon cases provide good examples of this.

Ströck is an Austrian baking company that underwent rapid expansion, forcing the founders to buy new production sites. The major learning process the bakery is currently facing is the introduction of middle management. The founders are having to learn how to delegate. The process is proving difficult since it involves establishing ways of dealing with communication and information in the firm. There is a clear trade off between company growth and the owner's need to hold the company reins. The founders, who previously managed the company in a much more informal way, are having to come to terms with this. The case of Aiwell in Norway provides similar lessons. In this case, the founder wanted to maintain his control of the company's expansion and began creating manuals and educating his workforce to deal with the rapid changes taking place.

Growth also requires firms to combine rational management and creative innovation. This applies to Lomo in Austria and Cartoon in Spain, as will be seen later.

Another point to emerge in several of the cases is the importance of founders and key workers having closely worked together. This experience helped trigger learning in some of the SMEs studied. In Ticon, Pulmoned and Escola, one can see how core members of the firm had already worked together before they set up the company. This greatly facilitated company learning since considerable consensus on important issues had been reached before the firm was even set up.

The Ottakringer, Ströck, Lomo, Escola, Vins cases and most of the Italian studies reveal how the founders or General Managers' values and ideas influence the other members of the firm and enhance co-operation and learning all round.

Lastly, changes in a company's legal framework (as in the Ottakringer, TIV, Escola and Vins cases) can also influence learning processes as a way of coming to terms with a new set of circumstances.

b) Actors

The four national analyses in this deliverable underline the central role played by the entrepreneur -or the dominant coalition, in the Austrian cases- in the learning processes. Examples of this are furnished by the Futureplast, Petrolnica, Parma, Aiwell, Cresto and all the Spanish cases bar one (Metallica is the exception here, given the key role played by middle managers and engineers in creating new knowledge).

In the Italian cases, the entrepreneur provides insight, creativity, a certain degree of technological competence and thorough knowledge of the market. He usually hires a technical expert or 'scientist' to help provide innovation. This technical partner not only contributes technical skills and know-how but, more importantly, forges contacts with key external agents. This can also be seen in some of the Spanish cases (Infogestión, Musexpo). However, the Spanish cases also furnish examples of founders who embody the company's experience and knowledge of its products. As we shall see, the learning pattern followed by these companies is different. Here, the main challenge the entrepreneur faces is how to transmit this knowledge to the company staff.

In the Austrian cases, the dominant coalition plays the main role in determining learning. The dominant coalition can be defined as the group of individuals who are nominally in charge of running the company. This coalition is usually supported by a group of experts (e.g. TIV, Ticon, Ströck) which performs special tasks in the organization. However, conflict sometimes arises between these experts and the management team. This is very clear in the case of TIV (an Austrian private TV station), where a struggle between different programme teams gave rise to sub-cultures within the company. The dominant coalition in TIV responded to this in-fighting by attempting to exercise control over the whole production process.

c) Learning processes:

The ability of SMEs to frame a specific problem also has a considerable bearing on the innovation path taken. This is an observation borne out by several cases in different countries. Company founders often have an intuitive grasp of unfulfilled market needs. This can be seen in all the Italian cases as well as three of the Norwegian ones (Aywell, Syslab and Proserv). In all these cases, it was the founder who learned about the market's needs and formulated the problem which the company's technical experts subsequently helped solve.

Regarding the learning processes, several cases also reveal how important it is for SMEs to control the core knowledge which provides them with their competitive edge. In the Austrian

cases, the dominant coalition is the actor which decides what should be learned by the organization and what knowledge is superfluous. The Italian cases show how entrepreneurs' involvement in innovation is crucial to success. If the founder does not follow up the work of his technical experts, he loses control and may well end up with a result which proves unmarketable.

Another common feature of the cases is the ability to learn from mistakes. In the Italian companies, experiment provides the key to innovation. Constant trial and error provides the fine honing required in reaching a solution. The Norwegian analysis emphasizes the importance of the concept of 'bounded rationality'. This analysis states that beliefs regarding what 'works' often prove too limited or just plain wrong because SMEs seldom have enough knowledge and resources to get things right the first time round.

In several cases (Ströck, Microalgae and Vins) we found examples of pro-active learning processes which are not triggered by environmental changes. A case in point is the Ströck product innovation policy. The Austrian research team discovered that the company's management team goes out of its way to visit other countries in order to pick up new ideas.

Yet another common feature displayed by most of the companies studied is the importance of networks to SME learning strategies. Sometimes SMEs anticipate market trends by taking part in institutional networks (e.g. Ottakringer and its relationship with a large Austrian brewers' association). Informal networks are also relevant to SME learning. For example, SMEs in the study found useful collaborators through informal networks (e.g. by attending Trade Fairs or informal meetings with suppliers, consultants, etc.).

d) Output:

There are three main outputs that repeatedly crop up in the companies studied. In the case of start-up firms (e.g. Ticon and Cartoon), one of the main outputs of the learning process is the creation of an organizational structure which cuts down resource wastage and makes internal communication more efficient.

Another relevant output is the development of new products by combining existing technologies. Many learning processes analyzed in the cases are linked to the development of innovative products (e.g. Polti, Proserv).

Finally, the creation of knowledge concerning external agents is also a key issue. SMEs find ways

of interacting with a range of suppliers, freelance professionals, governmental agencies and clients. The rapport involved is often highly conducive to learning.

3.1.2 Learning processes that emerged from data analysis by country

This summary of the results of the research carried out in the four different countries has been built on the more extensive deliverable number 4. In that deliverable, each partner explored the emerging learning processes stemming from the cases elaborated in their own countries.

In addition, this country-by-country research work was the basis for the development of cross-institutional analysis (deliverable number 5), the relationship between learning processes and competitiveness (deliverable number 6) and the policy implications (deliverable number 7) summarised in section 4 of the present Final Report.

We have included a condensed version of the findings of each partner, focusing on the relevant findings and contributions of each partner to the exploration of learning processes in SMEs.

A) ESADE research

One of the main findings that comes up from the Spanish cases and is the importance that the role of the entrepreneur plays in the learning process of the company. The founder main purpose and previous knowledge when creating the company is linked to the learning pattern that the firm follows. Therefore, the topic of entrepreneurship and organizational learning come together as a fruit of the analysis of the empirical data. This linkage is not very common in the literature on organizational learning. Yet, there are articles that have already researched the impact of entrepreneurial and management experience on early performance (see Stuart and Abetti, 1990). Our findings seem to go a little bit further and they open the possibility to explore if in the context of small and medium entreprises, company founders experience influence not only early performance but also the way in which organizational learning occurs.

In some of the cases, the founder's motivation when setting up a business was the creation of a product or service in which he had already been thinking for some time. In other cases, the founder's motivation was the business itself. In this case, the product was a secondary issue. We named the first group of companies 'instrumental' and the second group 'non- instrumental'.

What we observed is that 'instrumental' companies followed a different learning pattern from 'non-instrumental' in terms of enactment/adaptation to the environment, exploration/exploitation processes and integration of perspectives. At the same time, the companies' success factors identified in the cases differed according to the learning patterns followed.

We saw as well that there is a strong indication in the cases that the backgrounds of the founder and his close organizational collaborators also depend on the 'instrumental' – 'non-instrumental' nature of the firm.

1) Founders

The cases analysed revealed two types of founders. In the cases of Vins, Escola and Cartoon the founders wanted to create companies that would carry out an already-defined product idea. In these cases there is considerable motivation to create the company and it is related to the attractiveness of the product itself. Thus, the company is an instrument for the creation of this product. For instance, in the case of Vins, when the company founder began experimenting with wine production, he had no intention of doing it professionally. It was only later that he decided to structure this activity in the form of a company. In contrast, in Infogestión and Musexpo, the founders' motivation is to carry out a business project. Here, the business itself is the end pursued.

As for the entrepreneurs' background, Escola and Vins founders brought knowledge and experience related to the product, whereas in the case of Musexpo and Infogestión these knowledge and experience were linked to management.

In addition to the knowledge contributed by the founders, motivation must be as well taken into account as a learning facilitator.

Escola's project provided its founder with the opportunity to develop the kind of product he had long been waiting to do. The founder had previously worked for a publishing house whose senior management carefully defined the guidelines to follow and left little scope for his creativity. Escola was the opportunity to carry out a project where he had full autonomy to develop the ideas he had acquired throughout the years.

Vins is a similar case. The determination to produce an original and high quality wine was a strong motivation. The founder of Vins had previous knowledge about the product (family background, previous professional experience and knowledge) and had previous experience working in the sales departments of other companies in the sector.

In the case of Cartoon, motivation was especially important. The founder had had for a long time the idea of doing animated cartoons, in spite of his lack of knowledge and experience in this field. The founder –along with other collaborators- set up the business from scratch and while some people were familiar with parts of the production processes, none of them knew about the whole production process.

Infogestión and Musexpo are an outlet for their founders' entrepreneurial spirits. In these cases, motivation does not stem from the product itself but from the desire to have their own businesses.

2) Other actors

When we talk about other actors in a company we are referring to people other than the founders, who hold managerial job posts and often make strategic decisions. There are some cases in which the company's founder has skills related to management and coordinating teams. In these cases, the founder's background is complemented by the management team's more technical knowledge about the production process.

For example, in Musexpo and Infogestión, the founders needed more specialised product-related technical support. Musexpo's Project Manager is an engineer and before joining the company had worked on the construction of an interactive museum. He contributed experience with the product while the managing director and founder of the company contributed management experience. In the case of Infogestión, the Sales Manager had previously worked for another company in the same sector, while the Operations Manager was a telecommunications engineer.

At Metallica, several actors contribute to the creation of knowledge. Most of the people interviewed at Metallica have been working for the company a long time. The Industrial and Research Manager is an engineer and has a Ph.D. in research methodology. He did his studies while working in the company. This is also the case of the Process Engineering. Indeed, interviewees claim at different times that the company offers its executives, its managers and engineers a lot of training possibilities (they can frequently continue or complement their previous studies; they are given financing for management courses or more technical, job-related courses, and so on). Metallica offers its middle managers an opportunity for on-the-job career development.

In the case of Musexpo the Project Manager brings previous experience in the field of museum exhibitions and knowledge as an engineer that is very important for their business definition –

applying engineer methods exhibition organisation-. There is as well a freelance architect who brings useful technical knowledge to the company. Musexpo production processes have been developed building on the knowledge and experience brought first, by the Engineer and afterwards, by the subsequent project managers adding their new experience to this previous knowledge.

The two middle managers interviewed at Infogestión bring experience and knowledge that complements the founders' contribution. The Operations Manager brought technical knowledge that was key for introducing new communication technologies in the company services (digitalisation). The Sales Manager has previous experience in another document storage company. Both of them value the professional development opportunities the company provides. In the case of the sales manager, she left her previous company because she had less decision-making autonomy than she does at Infogestión. The Operations Manager values the fact that his job offers him a chance to develop his more commercial side.

In the case of Escola, people acquired their knowledge and experience in other companies of the same industry or in Escola itself. They could hardly bring knowledge directly from the educational system, since there was no university or post-graduate studies and vocational training related to the field of publishing. Although they normally join the company with some related training or experience (knowledge of teaching, printing, writing) they really learn to be editors and publishers while working for the company.

The situation at Cartoon is similar. There is no profession as such that embraces the skills and knowledge of animated cartoon's creators. The people working in the company have brought knowledge about some area involved in their jobs but they have had to add other knowledge and experience in order to be able to do their jobs. They often come from art or design schools but are not familiar with the production process involved in an animated cartoon series. This case shows also how the people who have been working at Cartoon for some time or who have prior experience in the sector train newcomers in the particularities of their jobs.

In summary, there are different organizational actors that bring to the organisation complementary technical knowledge to that of the entrepreneur or who reinforce the knowledge that the founder already has (e.g. Escola).

3) Founders and collaborators

We can say that in Vins and Escola, where the founder's motivation is to create a specific product, technical experience is rellevant. No managerial education is mentioned as necessary. In Infogestión and Musexpo, where the founder's main motivation was to set up a business. Founders had previous managerial experience and management educational background. Their collaborators bring the necessary technical knowledge. Cartoon is a mixed case. The founder wanted to create a particular product but he lacked the necessary skills. He had no educational background (technical) and no experience in the business. In this case, other collaborators provide part of this technical knowledge and the rest was learnt from experience. Finally, in the case of Metallica, the General director has technical background but is more interested in the managerial than in the technical side of the business. His immediate collaborators provide both managerial and technical knowledge.

The table below summarises what we explained about the organizational actors:

Founders' motivation and actors' background

Founder motivation	managerial *experience*	*technical experience*	*managerial education*	*technical education*
create a business (non-instrumental)	Infogestión (1) Metallica (1) Musexpo (1) Cartoon (1, 2)	Infogestión (2) Metallica (2) Musexpo (2) Cartoon (2) Vins (1)	Infogestión (1) Musexpo (1) Cartoon (1,2)	Infogestión (2)) Metallica (1,2) Musexpo (2) Vins (2)
create a product (instrumental)		Escola (1,2)		

Relevant background of founder (1) and founder's immediate collaborators (2)

Technical education: formal education provided within the frame of the educational system and related with the product the company offers. *Managerial education*: formal education provided within the frame of the educational system and related with organizational (management) issues.

We can draw someconclusions based on the information appearing in the previous table:

First. Managerial and technical education in management and technology seem to be more relevant in the case of companies where the founder's motivation was to create a business (non-instrumental) than in those where the founder's motivation was to create a specific product (instrumental).

Second. In the "non-instrumental" companies, founders have managerial experience and look for people that complement their knowledge with technical experience.

Third. There are strong indications that in the "instrumental" companies, technical background, coming mainly from experience, is the main organizational asset.

Fourth. Previous management experience seems to be more relevant in "non-instrumental" companies than in "instrumental" companies.

Exploration of two different learning paterns: instrumental Vs. non instrumental learning processes

In the companies analysed we found two different learning patterns. These patterns are mainly related to the role the founder played in the creation of the company, but also to other variables that we will analyse in this section. The role of the founder is particularly important in an early stage.

In the first group of companies -Cartoon, Escola and Vins -, the founder is firmly convinced about the product he wants to develop. The company has to develop the skills and knowledge needed to bring the founder's project to market. We call these "instrumental" companies because they were created as a mean to develop that specific product concept.

In the second group - Metallica, Musexpo and Infogestión -, the founder was interested in setting up a business, and the product to be offered was a secondary issue. We call these "non-instrumental" companies.

In terms of learning, "instrumental" companies are characterised by:

- product-related founder's background and motivation
- initial exploration process
- the main success factor is related to the product concept
- the company enacts its environment
- different perspectives are less closely integrated
- less interaction with customers

In contrast "non-instrumental" companies are characterised by:

- the founder's management background and motives related to starting his own business
- continuous exploration processes
- the main success factor is not related to product concept
- the company adapts to its environment
- different perspectives are more integrated
- more interaction with customers

This classification is the result of data obtained from our empirical study. It is a descriptive classification which aims to facilitate understanding of the learning processes identified in the companies. In no case can we talk about pure "instrumental" or "non-instrumental" companies.

The following table summarizes this information:

Instrumental vs. Non-instrumental companies

	"instrumental"	**"non-instrumental"**

Founder's motivation	Create a product	Create a business
Founder's education	Technical/None	Management
Founder's experience	Technical	Management
Explore / Exploit	Emphasis on initial exploration	Continuous exploration and exploitation
Values, beliefs and ideas	Product incorporates founders'values, beliefs and ideas	Founder's values, beliefs and ideas are not so relevant in relation to the product
Relationship with the environment	Enactment	Adaptation
Key success factor	More linked to product	More linked to processes
Integration of different perspectives	Mainly, founder perspective	Different perspectives are integrated
Interaction with customers	Relatively less important and usual	More important and usual
Companies	**Vins, Cartoon, Escola**	**Metallica, Infogestión, Musexpo**

We will now proceed to describe these two groups of companies on the basis of the different variables we studied.

1. Founder's background and motivation

There are several studies that set out to clarify the relationship between entrepreneurs' backgrounds and the success of start-up businesses (Stuart & Abetti, 1990; Cooper, Gimeno-Gascon & Woo, 1994; Planellas, 2000). Based on an empirical longitudinal study, Planellas

points out that ”certain features of an entrepreneur’s career clearly affect the success of the venture (e.g. previous experience of management, setting up companies, and knowledge of both the product and the market)” [original quotation in Spanish[1]] (p12). However, there is still much work to be done given the wide variety of conclusions emerging from these studies. For instance, Stuart and Abetti (1990) conclude from their empirical data that entrepreneurs’ management and technical experience are not significantly related to performance. Planellas also contends that technical experience has little impact on performance, however his data shows that managerial experience is an important factor to take into account.

There are several studies that have tried to empirically establish a relationship between founders’ backgrounds and start-up business performance. However, little data is available on the relationship between entrepreneurial backgrounds and the way organizations learn and interact with their environments. It was this second relationship which we wanted to explore in our empirical data.

One thing “instrumental” companies all share in common is their founder’s strong desire to bring a particular product to market. In the cases of the founders of Escola and Vins, motivation was accompanied by a thorough knowledge of the product and its production processes. Thus, the company did not have to start from scratch, learning the production process and how to position itself in the market. These are projects that were carefully thought out in advance by the founder, who contributed with his own knowledge and experience of the product.

In contrast, the founders of Infogestión, Musexpo and Metallica, had experience or training in business administration or management but did not bring any previous knowledge of the product to the company. In all three cases, the founders have had to surround themselves with other people whose backgrounds are more technical and more related to the product.

2. Exploration and exploitation processes

According to March (1991), ‘exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery innovation. Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation,

[1] “…determinadas características biográficas del empresario tienen un claro impacto sobre los resultados (la experiencia previa en un puesto directivo y en la creación de empresas, y el conocimiento del producto y del mercado)”

execution'. Exploration and exploitation are both essential for any organization. However, there is a trade-off between both activities since 'they compete for scarce resources' (p. 102).

All the firms in our study provided examples of both exploration and exploitation processes. However, as we shall see, exploration and exploitation processes predominate during different stages of the organization's life cycle depending on the 'instrumental' or 'non-instrumental' nature of those firms.

Our analysis revealed that in some of the companies a great deal of product-related learning took place at the outset of the business, when the product concept must necessarily be defined. In contrast, in other companies the product concept is redefined as the company acquires new customers.

"Instrumental" companies defined the product concept at the start of their business and subsequently introduced changes or improvements.

In these cases, the initial exploration processes were linked to the founder's background, which provided the necessary framework for the product idea development. This exploration takes place quite some time before the company is set up. The founders of Vins, Cartoon and Escola started defining the product concept long before the business project was feasible. In the case of Escola and Vins, founders were already well-steeped in their respective fields. Their backgrounds allowed them to come up with sound new ideas. As mentioned earlier, these entrepreneurs already had a great deal of product-linked experience. The development of their ideas drew on their previous experience and on the tacit knowledge that they had accumulated. According to Polanyi (1967), 'people know more than they can tell' (p. 4). Lam (2000) contends that 'tacit knowledge is 'intuitive and unarticulated. [...] Knowledge of this type is action-oriented and has a personal quality that makes it difficult to formalize or communicate' (p. 490). Spender (1998) distinguishes explicit from tacit knowledge by stating that there is a difference between 'what one knows consciously and what one might know in some other way that can only be demonstrated through practice' (p. 23).

To sum up, the creation of "instrumental" companies is the result of thinking long and hard about the project. It takes time for this initial exploration process to blossom into a feasible business idea.

In the cases of Vins, Escola and Cartoon the company founders had long been thinking about producing a particular type of product but had not yet found an opportunity to do so. The companies are the culmination of a great deal of work done by people who wanted to make long-considered projects materialise. As a result, when their companies first gets underway they had a much-awaited opportunity to apply everything they had previously learned.

Thus, the founder of Escola had previous experience in the sector and he had even written a book on the Educational Reform Act that had to inspire his project. On the other hand, even before starting the company, the founder of Vins had been experimenting and thinking for some time about creating a distinctive wine to be sold in limited quantities.

At Escola what the managing director learned about the educational Reform during the first moments combined with his background as a textbook editor enabled him to design a product concept which remained intact, albeit with some variations, for 9 years. During this initial period no training activities took place. Slight changes were made in the core concept but the project was never called into question.

Product-related learning at Cartoon took also place at the company's outset. The product concept– animated cartoons with certain educational values – was defined and the company has remained faithful to this concept. Although the company is now developing new series featuring new characters, they maintain the same product concept, which is based on high-quality drawings that transmit certain values (friendship, non-violence, etc.). However, because of technological changes and the company growth, they kept on changing production processes along the time. Therefore, learning related to the concept of the product concentrated at the outset of the activity, but learning related with production processes is still going on.

Therefore, in those companies whose founder has a product-related background, the learning linked to the production process takes place at the outset of the activity, when the founder has to put his business idea into practice. After this initial exploration the company exploits the knowledge generated and simply refines the product as customer feedback is received, but never makes substantial changes.

In contrast, in companies like Metallica and Infogestión, learning related to the product concept takes place throughout their history. Indeed, there is no "signature product" like those described

above. Instead they start out by producing one type of product which they then adapt or even replace with others, depending on market needs, customer orders or company strategy.

Thus, Metallica started out as a foundry that manufactured all types of parts and later focused on a single product (teeth for earth-moving machines). Since then innovation has concentrated on developing variations of this product.

Infogestión is an example of a company that adapts its services and creates new ones in response to customer orders. For example, in the beginning the company simply planned to store documents for other companies that were short on space. It wasn't long before they realised that their customers frequently needed to use their stored information, and Infogestión introduced a consulting service. In some cases, they were asked to consult documents so frequently that they began thinking about digitalising the documents in order to avoid having to search for the paper copies every time they were asked to consult the information stored.

Later on, some customers decided to sub-contract management of all their files and got in touch with Infogestión, which was the company most familiar with their operations. As a result, Infogestión introduced yet another new service and can now work on-site at customer offices.

Also in the case of Musexpo, the organisation has been refining its production processes and the way it deals with its clients throughout its history. When the business started, the founder did not know anything about science museums. Additionally, different projects might require the company to work in different cultural settings, providing new learning opportunities.

From the standpoint of learning, we can say that companies that largely learned about their products at the outset of their business are now in a process of exploiting and refining their learning. On the other hand, the companies that repeatedly adapt their product concept to new circumstances are continually seeking new ways to understand and produce their product ("exploration") while simultaneously improving what they did before ("exploitation").

We can sum up by saying that all the companies analysed exploit their acquired knowledge and explored new knowledge. The difference among them is the point at which each of the two processes is dominant.

3. Incorporation of the founder's cultural values, beliefs and ideas

In all three of our "instrumental" companies, the product involves the founder's values, beliefs and ideas. This does not happen in the rest of organisations analysed.

Cartoon's animated films series clearly exclude violence and promote values of solidarity and friendship. No matter how much customers might insist on a more violent, lower quality product, Cartoon would not change its product concept because that is what gives the company its personality and differentiates it from other companies in the market. The fact that Escola is a pioneer in applying the Educational Reform to its textbooks is a basic pilar of the company. Although the sales representatives listen closely to teachers' suggestions for improving the product, the publisher would never agree to changes that betrayed the spirit of the Reform. The sales representatives are in some way "apostles" of the product, attempting to explain to their customers why the texts are structured in a certain way rather than just presenting the sales arguments that might convince the customer. Lastly, the case of Vins is the clearest of all in that the founder of the company refines the product in relation to his own criteria for quality, and does not pay so much attention to customer feedback, although he does keep in mind the opinions expressed by *sommeliers* who sample his wines.

4. Environment adaptation and environment enactment

Weick states in his book *The Social Psychology of Organizing* that he used the term "enactment to emphasize that managers construct, rearrange, single out, and demolish many 'objective' features of their surroundings" (p. 243)[2]. In this way, they *create* their own environments.

As we have seen, in Escola, Vins and Cartoon, the product concept that was mainly designed by the founder at the outset of the activity pervades all companies' behaviour. When addressing themselves to the market, these companies select the segment that shares their views rather than sacrifying them to have a larger share. What is more, they have an active attitude in explaining the values that lie behind their product. They try to influence the environment by carrying out an innovative pedagogical approach that might change the teachers' habits. In other words, they enact their environment.

[2] Weick, Karl E. (1979 [1969]). *The social psychology of organizing.* Reading, Mass.: Addison-Wesley.

On the contrary, in the cases of Infogestión, Metallica and Musexpo companies try to answer their customer needs, whatever they are. As we have seen, the founders' motivation is to create a company and they don't care so much about the product they make. They adapt to their environments.

The most clear example of this is Infogestión. This is a company that is guided by the idea – and this was explicitly stated in all the interviews – that they must satisfy all their customers' needs (even if they appear to be far removed from Infogestión's business concept). The people interviewed all mentioned that Infogestión has to be the customer's only interlocutor and if there is any service they cannot offer directly, they will take care of subcontracting it. In this way, Infogestión's activity has expanded at the same pace as their customers' needs. Thus, it wasn't until work for one of their customers began to exceed the company's capacity to handle the amount of consultations made every day, that the company first thought about digitalising documents as a pilot experience. What's more, Infogestión's services vary considerably according to the customer involved. In some cases the company simply stores customer files in its warehouse. In other cases, Infogestión is much more closely involved in the customer's business and may even have some of its employees permanently stationed in the customer company in order to handle document management. In still other cases, the company delivers services that do not seem to have much to do with its activity. For example, Infogestión manages all the wastepaper baskets in the offices of a well-known bank in Barcelona, which happens to be one of the company's most important customers.

The situation is similar at Musexpo, which offers everything from an advisory service to the construction of a museum or exhibition, providing the client agrees to set it up in an interactive way. Musexpo differs from Infogestión in that it does not increase its range of possible services depending on the client, but offers a standardised service. In contrast, the company adapts its service to what the client wants. It is made clear from the very outset that the client has to be involved in the project if it is to be a success and so that afterwards the client can manage the museu on its own, with no help from Musexo. As a result Musexpo keeps the client's opinion very much in mind when designing the museum and, even though they don't necessarily agree, the company always ends up adapting to whatever the client wants.

Metallica is a company that is always striving to improve its existing products and launch new ones in order to be competitive. The company collects feedback from end users and distributors through its sales representatives and also through the technical assistance department.

Innovations are thus focused on adapting the company products as closely as possible to customer needs.

The company's research on patentable products and its promotion of its own brand image are partly motivated by a previous takeover attempt by an American multinational. Up until then, Metallica had been the U.S. company's exclusive licensee. The unsuccessful attempt to buy out Metallica caused relations between the two companies to become strained. Metallica realised that it needed to find its own market niche, regardless of the fact that it is still the American company's licensee. This somehow caused Metallica to rethink its company strategy and it soon began creating its own brand and doing more research on patentable products.

5. Main success factors

Building on the the interviewees' narratives about the initiatives undertaken and how they have thought about their consequences, we have identified the main success factors for each of the organisations analysed. These are the activities in which the companies excel and which distinguish them from their competitors.

At Musexpo and Infogestión the main success factor appears to be coordination between people and processes. Musexpo coordinates the different free-lance specialists who design and produce a particular exhibition. Infogestión adapts its process to individual customer requirements and coordinates the tasks of everyone involved in the process. In both cases a talent for interpersonal relationships is needed as is the ability to adapt standard procedures to the particularities of each order. This requires a great deal of planning. In Musexpo planning translates to drawing up PERTS, etc. Learning occurs, on the one hand, through dialogue between the people involved and, on the other, through successively repeating a procedure or variations on that procedure. This allows standardisation of the parts of the process that remain unchanged while the remainder of the process is adapted to specific projects or customers.

Metallica's main success factor is production. Constant refining of the production process leads to experiments with new production methods, use of new alloys, a search for new tooth designs, and so on.

At Cartoon, Escola and Vins the main success factor is creating a product that contains certain values that customers appreciate. In order to create it, technical knowledge was required. In

Escola and Vins, the founders provided it, whereas in Cartoon, a person involved initially in the company brought his previous experience.

To sum up, we can say that "instrumental companies" base their main competitive advantage in the creation of an innovative product concept which is mainly conceived by the founder. In "non-instrumental" companies the sucess factor is more linked to management coordination skills.

Success Factors

Main success factor	**Companies**	**Founder's background**	**Competence required**
Coordinating people and processes	Infogestión Musexpo	Managerial	Interrelational skills and planning skills and capacities .
Creating an original product concept	Cartoon Escola Vins	Technical	Professional experience and technical background
Continuous refinement and innovation in the production processes	Metallica	Managerial	Experimenting attitude

6. Integration of perspectives

In companies whose founder has a thorough knowledge of the product (Escola and Vins), we observed that the decision making process is more centralised.

Likewise, in those companies where decision making is more centralized there are fewer learning processes that deal with integrating the different perspectives of company members and external agents than there are in companies where decision making processes are more shared. It is only logical to think, and our empirical study appears to bear this out, that those companies whose

founders do not or cannot have full knowledge of the production process, have a greater need to integrate different perspectives. In such contexts, team learning is a key issue.

Two good examples are Metallica and Musexpo. In the case of Metallica, the company needs the help of external agents such as research centres or university professors in order to carry out their research and innovation processes. Moreover, the Product Engineering and Sales and Marketing Departments need to hold regular meetings so that product development is adapted to customer needs.

In the case of Musexpo, the company needs to integrate its client's ideas about the exhibit with its own ideas and those of the other agents taking part in the project (among them specialists in the exhibition's subject matter, architects, designers, etc.) The company's main skill lies in learning how to coordinate agents with very different backgrounds in a common project where there is pressure to keep to a budget and meet deadlines previously set by the client.

This integration of perspectives is not so necessary in cases like Escola and Vins. In these companies, the founder is the person who knows the product best and has planned the business project by himself. Moreover, in these cases, the founder has a global knowledge of the production process and does not have so much need of complementary knowledge. This means that the founder has to explain his ideas to the rest of his collaborators and tell them what he expects of them, rather than integrating different perspectives. The wealth of learning in the organisation is rooted in the skill to exploit the founder's knowledge in the framework of the business project. That is why the decision making process is more centralised at Escola and Vins than at Metallica or Musexpo.

Another factor that explains why there are more processes involving integration of different perspectives in one company than in another is related to each company's principal task or activity. Thus, the principal task of a company like Musexpo is coordination while a company like Vins is basically devoted to exploring a new product concept (a "signature" wine). Because of its type of business activity Musexpo needs to integrate different agents' perspectives in a common project. In contrast, most of the organizational learning that takes place at Vins is the outcome of the founder's own efforts.

7. Interaction with customers

"Instrumental" companies do not take much into account the client feedback. This is especially true in the case of Vins and Escola. These three companies use customer information to refine the product. This means that they would only sligtly change the product following what the customer suggests in case they are convinced of that. Especially in the case of Escola and Vins, they would not change the product just to have more customers if they do not agree that the product is in line with what the company wants to do.

In the rest of companies ("non-instrumental"), customer feedback is necessary to adapt to market needs. Metallica needs customer feedback to have the necessary inputs in order to innovate in the product design and manufacturing. And both Musexpo and Infogestión need to be in permanent contact with the client in order to provide its service efficiently. In the case of Musexpo, the company needs information about the exhibition content and about the local context (most trustful suppliers, local habits of work, most used materials, etc.) in which the museum will be built. Finally, Infogestión needs to know about the client's internal procedures in order to provide its service. They also have to follow up customer needs in order to expand their service.

Conclusions from the ESADE research

We have described how the role of the founder is linked to the learning patterns identified in six Catalan small and medium sized companies.

In those companies where the founder's background was related to the product, there was an emphasis on initial exploration processes and a clear intention of enacting the environment. At the same time, customers' feedback was not especially relevant and there was no special need for integrating different perspecitves in the company, since the founder had a clear idea of how the product should be.

In the rest of cases, where the founder's background was not related to the product but to managerial tasks, there were continuous exploration and exploitation processes and the companies learnt to adapt to their environments. Customer feedback was therefore relevant to survive and, since the founder lacked of technical knowledge, there was a greater need for integrating different perspectives in the company.

B) WUV research

The Austrian research came up with the importance of dominant coalitions and communities of practice in the learning processes that where described in the cases. They interplay between the dominant coalition and these informal communities was a key issue for the overall organizational learning.

Regarding the learning process itself, the Austrian partner also distinguished between stabilizing learning processes versus innovative learning processes and between proactive and reactive learning processes. They advocated that stabilizing learning processes were as important as innovative learning processes because those learning processes aimed at stabilizing existing structure, knowledge and routines appeared to be important as well for the maintenance of the organization.

As for proactive learning processes, they acknowledged that they were not so common as reactive ones, although many times it was difficult to distinguish between both.

The dominant coalition was identified as the main agent that decided which information had to lead to a change in the stucture, the routines or the culture of the organization and which could be integrated in the existing organizational framework. Additionally, communities of practice might look at new practices as a threat to their identity and they might hinder innovative learning processes. Therefore, the cases revealed that both the dominant coalition and the communities of practice had a relevant role to promote or refuse innovative learning processes. This was linked as well with the need to unlearn old 'theories in use', which by the way proved to be very difficult in some cases.

The most important findings of the Austrian partner can be summarised in the following themes:

1. The dominant coalition

Elaboration of the collected and interpreted data showed that the dominant coalition plays a major role within organizational learning processes. The dominant coalition can be defined as a group of individuals that formally lead the company, whereby its composition can vary according to the tasks to be performed. Normally, however, the core members of the dominant coalition are fixed and only peripheral participants may change due to the fact that they usually act as experts to

perform special tasks.

First of all it has to be mentioned that the dominant coalition is seen to be the main agent of organizational learning processes as it learns on behalf of the whole organization (representative learning). The content of what is being learned by the dominant coalition differs from company to company and is also influenced by certain contextual factors.

Central to all six companies is the process of adaptation to changing environmental expectations. In contrast to TIV, Ottakringer, Ströck, Lomo and Ticon who adapt to changing expectations in order to maintain the supply of resources from the environment, Pulmomed is forced to adapt to changing expectations in its institutional environment as it depends on the support of important persons and organizations in the industry to realize its vision which consists in challenging and reformulating existing expectations.

As mentioned in chapter 4.1.1. on individuals as agents of organizational learning, the dominant coalition can influence the scope of action of individuals and therefore individual learning processes by implementing certain structuring measures. Individual as well as group learning processes of the dominant coalition often result in a change or implementation of new organizational structures or tools. This shows that on the one hand the dominant coalition learns on behalf of the organization and on the other hand the content of what is being learned is reflected in resulting organizational structure.

The inadequacy of organizational structures according to the widely accepted business practices, induced a learning process of Lomo's dominant coalition. In the first step Lomo recognized the gap between its existing business practices and environmental expectations. This led to a reflection process with the result that such tools and structures were introduced to avoid these discrepancies. Furthermore it can be said that their way of thinking changed as they learned to take environmental expectations into consideration. As a consequence of this learning process the organization was continuously reorganized in order to balance the conflict between creativity and its commercialization.

Additionally, the dominant coalition sets the relevance structure for the whole organization according to which individual actors act. As a consequence new ideas and incentives for organization-wide action that are brought to the attention of the dominant coalition have to fit this relevance structure in order to be considered and integrated into the knowledge base of the

dominant coalition. Central to this process is the acceptance of the knowledge as valid and appropriate by the dominant coalition. In order for new knowledge to be accepted by the dominant coalition, not only the content of the idea or the new knowledge but also the form in which it is communicated to the dominant coalition has to fit the existing relevance structure. The relevance structure of the dominant coalition also contains rules about whether an employee is regarded as a reliable informant or not. Ottakringer's dominant coalition for instance defines boundary spanners whose information is accepted and considered as useful and valid for the dominant coalition. The ascription of the boundary spanner role enables the employees in question to have greater influence on the organizational knowledge base as the probability of acceptance and integration is increased.

The notion dominant implies an authoritative relationship and a superordinated role in the process of creation and distribution of knowledge is assumed. The dominant coalition, however, is also dependent on the knowledge of the employees and work groups. This knowledge provides a necessary resource for the organization as the dominant coalition would not be able to have such a broad and deep knowledge about specific domains. TIV is facing this problem at the moment. It has to secure that the knowledge developed in the single redaction groups is made accessible for the whole organization. The high fluctuation led to the problem of losing access to the previously accessible knowledge, whereby the organization now tries to stabilize the knowledge base by implementing routines and reducing fluctuation. Through institutionalization of knowledge structures organizations reduce the dependency on individual knowledge.

The transformation process of knowledge from employees to the dominant coalition is highly complex and involves top-down as well as bottom-up processes. On the one hand the dominant coalition's relevance structure is transferred to organizational members in a more or less authoritative way, on the other hand the relevance structure provides the basis for organizational members to perceive and evaluate knowledge which is then put at the disposal of the dominant coalition. It has to be pointed out again that the dominant coalition is highly dependent on this type of individual knowledge.

Moreover it has to be mentioned that knowledge stemming from employees can be seen as co-produced by the dominant coalition as it conforms partly with the relevance structure of the dominant coalition.

2. Communities of practice

Communities of practice are referred to as “an informal aggregation defined not only by its members but by the shared manner in which they do things and interpret events.” (Gherardi, Nicolini, Odella, 1998)

Consecutively it has to be added that communities of practice are not defined according to formal criteria such as departmentalization, but the participation in common day to day activities leads to the emergence of such communities. In a certain sense even the dominant coalition may be regarded as a community of practice as specific tasks concerning the leadership and management of the company are performed. Through daily working practices routines are being developed in the constituent phase, which lead to the development of a common relevance structure of the community of practice. We are not going to further elaborate the dominant coalition’s role as a community of practice as learning processes concerning the dominant coalition have been described above.
In this chapter we are going to concentrate on communities of practice emerging on a non hierarchical level.

Communities of practice develop structures that guide behavior as well as sense-making of their members. Additionally, learning processes are mainly influenced by these structures. The single redaction groups at TIV can be cited as an example for communities of practice. (Other examples for communities of practice are project teams at TICON or the production at Ströck.) As a consequence of the fact that members of the redaction groups work either on an unpaid or minimum pay basis a high identification with the product they produce is the result. Each redaction team has developed its own patterns concerning interaction, working practices and mutual understanding. The mode of working activities of the redaction teams enables the groups to develop a basis for a unique identity feeling. The development of single, unique identities of the communities of practice leads to a high separation of the groups. The learning processes therefore concentrate on the generation of internal stability and consequently remain within the single community of practice. Socialization modes stabilize internal knowledge and work practices. This leads to the fact that knowledge created through these internal learning processes remains in single communities of practices only and is not diffused to the whole organization. This case shows that not the dominant coalition’s logic necessarily is the dominant logic of the community of practice, it’s the community’s logic itself that represents the relevance structure for the community of practice.

The conceptualization of communities of practice as agents of organizational learning processes

can be a powerful tool to explain the complexity of learning in organizations. It has to be pointed out, however, that the organization (either the dominant coalition as representative for the organization or the aggregation of communities of practices [including the community of the dominant coalition]) has to secure that the output (e.g. knowledge) of organizational learning processes within the single communities of practice are put at the disposal of the whole organization. The structures of an organization have to enable the transfer of knowledge from one community to another. If an organization fails to diffuse the knowledge created in one community of practice to others only a fragmented organizational learning process took place. The diffusion process of learning therefore is central for organizational learning to occur.

3. Stabilizing learning processes versus innovative learning processes

The notion “learning” normally implies a positive connotation and therefore refers to such processes that bring a certain kind of change or innovation with it which results in a superior performance of the company. According to our empirical analysis, we could identify learning processes that led to a change in the organization, but additionally a variety of processes aimed at stabilizing existing structure, knowledge and routines appeared to be important for the maintenance of the organization.

Organizational members act on the basis of their knowledge base. The result of the actions often is evaluated in a retrospective sense-making process. In this process the knowledge lying at the basis of the actions is either enforced or discarded according to the meaning applied to it in the retrospective sense-making process. In this process the implicit and explicit assumptions, norms or beliefs are reinforced which stabilizes the organization and its knowledge base. The process is not a pure rational process evaluating the results to be right or wrong in a strict sense, but also involves defensive routines on the basis of which certain types of organizational action take place.

At Ottakringer, for example, information and knowledge acquisition processes follow a certain pattern which leads to the fact that only selective information is perceived, acquired and distributed. Through this pattern only such information and knowledge is brought into the company that confirms with the company’s action and procedures and therefore stabilizes existing routines on the one hand. On the other hand, however, the organization has developed mechanisms that frame and rationalize acquired information that is not compatible with the company’s existing structures so as to secure that the “new” information fits and can be integrated into this sense-making structure. As a consequence the sense-making structure of the organization is reinforced and stabilized. Through this stabilization process the organization

maintains its identity with respect to its environment.

In order for a change of this information acquisition procedure to take place, an external stimuli (changing market conditions, consumer demands, etc.) has to be perceived and regarded as so intense by the dominant coalition that the rationalization and sense-making process described above cannot be applied any more. Despite rationalization processes the stimulus cannot be integrated into the existing sense-making structure. Therefore the structure itself has to be further developed and changed.

Making a difference between lower and higher level learning, it can be pointed out that the stabilization learning process may be regarded as a lower type of learning process while the change of the existing sense-making structure is seen as a higher level learning process. Higher level learning can be seen as a precondition for organizational innovation to occur.

The commonly shared knowledge base of an organization or a community of practice is part of its identity. In the knowledge base of the organization or the community of practice many elements exist that make one organization distinguishable from others. In order to maintain its identity the organization has to protect itself from knowledge that undermines its unique knowledge. On the reasons of missing organizational structures and resources, the communities of practice at TIV developed their own knowledge base. As some of the practices developed are seen as unique to the community, a change of these working practices as well as the correspondent knowledge are seen as a threat and interference into the identity of the respective community of practice. This means that certain types of learning processes can be hindered. In order for knowledge to be acceptable for the community of practice it has to come from a member of the community or an external person who is ascribed independence of the dominant coalition as well as to be an acknowledged expert. Knowledge stemming either from another community of practice or the dominant coalition is rejected for fear of being a potential threat for the identity of the community of practice.

At Ströck a high tension regarding the relationship between change and stabilization exists. The dominant coalition tries to introduce a middle management in order to relieve itself from the major operative tasks. This change in the structure of the organization, however, cannot be successful until the dominant coalition is prepared to decentralize decision-making competencies and responsibility too. At the moment the four family members are only aware of the fact that the introduction of a middle management is necessary, but have not learned to delegate responsibility

yet. Moreover the dominant coalition has not recognized the scope of the resulting side-effects. The organization still operates according to the “old” patterns although a middle management has been introduced. The middle management has learned to integrate itself as well as to create its own scope of action within the existing structure. It is crucial that the middle management has learned about the action logic of the dominant coalition, is able to understand it and act according to their principles.

As mentioned above stabilization processes aim at maintaining the identity of the organization or a single community of practice. On the contrary processes including the acquisition, integration and distribution of knowledge may also represent the starting point for a change in structure, standard operating procedures and routines.

In order for individual learning processes to have consequences on the organizational level, the learning result has to be perpetuated within organizational structure. The individual learning result then has consequences for the whole or a part of the organization. Organizational structure is seen as a medium for the storage of newly acquired knowledge which is then available for organizational members. The learning process, however, doesn’t end with the implementation of a new organizational structure. First of all, organizational learning emerges from the fact that organizational members have to learn to operate within this new structure and possibly have to unlearn previous organizational routines that don’t fit with the newly implemented structure. Moreover new routines, standard operating procedures and behaviors induced by the change in structure have to be stabilized after the period of change.

Change in organizational structure, standard operating procedures and routines also calls for a change of underlying assumptions and ways of reasoning. At Ströck, for example, the introduction of a middle management is seen as a change in the structure of the organization resulting from the learning process of the dominant coalition. This change implies a questioning of the basic principles and assumptions of the dominant coalition. In this case only a loose coupling between organizational structure and the underlying principles of action exists, which means that the organizational learning process has not been brought to an end yet. For the implementation of the middle management to meet the expected targets the dominant coalition has to change the principles guiding its action and thinking to secure full development of the structural change.

Concluding it has to be pointed out that information acquisition, integration and distribution

processes led the dominant coalition to recognize a need for structural change. Recognition of a need for change can be seen as the first step in the learning process. As mentioned above implementation of a new structure lies the basis for organizational learning processes involving the whole organization. A further learning process lies in the fact that the dominant coalition recognized that “theories in action” have to be changed to fit the new structure. The major problem or blockade of the learning process, and this is true for all six cases, consists in the missing link between the conscious questioning of theories of action and the unconscious assumptions and "theories in use". If existing "theories in use" have not been completely “forgotten” or unlearned, organizational members recall “old theories in use" as their principle of action which leads to the fact that the “new” organizational structure is undermined. For unconscious theories in use to get changed, the organization has to engage in a reflection process in which the difference between the consequences on action of the old and the new structure are compared.

4. Reactive vs. proactive learning processes

Reactive learning processes may be defined as processes arising from external or internal “irritations” whereas proactive learning processes refer to processes of self-reflection (self-evaluation) aimed at continuous improvement of the performance of the organization.

Reactive learning processes may be classified according to the stimulus that induce them; on the one hand it may be an external environmental stimulus and on the other hand an internal performance gap. For a performance gap to induce a reactive learning process it is necessary that the organization provides certain mechanisms and procedures that signal that a performance gap exists. The information brought to the attention of the organization by these mechanisms and procedures is regarded as objective and therefore comparable to external environmental stimuli.

In general environmental stimuli are processed in two different ways. Stimuli that can easily be integrated into organizational sense structures and which do not involve a questioning and change of existing stimulus-response relationships are processed in the way that the information is being integrated into the existing structure without changing the principles of the structure. For stimuli that demand a reaction of the organization the usual response of the organization is given.

As for Ströck the customer as well as customers’ needs are of major importance, changes in customers’ needs, reclamation and suggestions are being regarded as ordinary and not problematic. As a consequence Ströck’s structure and principles guiding action are shaped in the

way that such external stimuli can be processed easily without having to change day-to day routine. It has to be pointed out, however, that this is true only as long as customers' feedback meets the expectations of the organization. For feedback that lies outside this stated terms, such as a serious decline or shift in customers' needs, two strategies may be the consequence. On the one hand the organization can rationalize the stimulus in such a way to fit the existing sense structures so that existing responses are still adequate. On the other hand a reflection process may be induced which leads to a change in the sense structure of the organization as well as the corresponding response.

The external stimulus is therefore perceived as relevant for organizational action as it puts into question the relevance structure of the dominant coalition. The information coming from the environment cannot be integrated into the knowledge base of the organization any more as this would have a negative impact on the performance of the organization. In order for the stimulus to be able to be processed within the organization, the organization has to engage in a reflection process on the existing sense structure, the scope and the meaning of the stimulus. Reflection processes on stimuli that lead to a reorientation in the sense structure of the organization also involve the development of new and appropriate behavior as well as a radical change of the relevance structure of the organization.

The interpretation of our cases showed that especially start-up companies are faced with existential threats that necessarily lead to a reorientation process towards commercialization. In the companies under investigation the main targets consisted in the realization of an innovative idea more or less neglecting financial targets. As a consequence of the companies' not taking into consideration environmental expectations and institutional rules, provision of resources from the environment was refused in some cases. Even if certain stimuli from the environment could not be considered as threatening the existence of the organization, further negligence of environmental expectations might have led to substantial problems for the organization.

As an example for above described process, the financial problems of Lomo in the start-up phase can be mentioned. In order to finance the purchase of Lomo cameras in advance, the company tried to apply for a loan and succeeded in being granted a loan. Due to a wrong calculation of the return of sales, the granted loan did not cover current expenses. In addition the bank refused an increase of the granted loan. This experience led to a psychological problem of the two founders, but can also be seen as a trigger for organizational learning processes. Out of this experience the two founders recognized the importance to adhere to general business practices. They adopted a

tool for liquidity planning in order to on the one hand prevent themselves of making such a mistake again and on the other hand to maintain a financial equilibrium. This financial problem can be seen as one type of event that led the company to reorganize itself. The early phase of the company can be characterized by reactive learning processes triggered by similar events as the one mentioned above in which environmental requirements were not satisfied and the flow of resources from the environment was interrupted.

Learning processes triggered by stimuli external to the organization may lead either to minor adjustments to changing environmental requirements or to a general reorientation of the organization's norms and practices. Organizations, however, have an inherent capability of self-reflection and as a consequence learning processes may also result from organizationally internal initiatives. The product innovation process at Ströck may be seen as such a proactive learning process. The dominant coalition searches actively for new product ideas by visiting other countries and thereby trying to collect as much stimuli as possible. The crucial difference between such a proactive learning process and the reactive learning processes described above, lies in the fact that Ströck's dominant coalition itself "goes out" to search for stimuli that are further developed within the company. This is to say that the dominant coalition may taste or see a product that may be added to the product line of the bakery. As a consequence it is tried to produce this product and launch it in Austria by adapting it to the national taste and by using the resources provided in Austria.

Learning processes in this case can be seen as triggered by the capacity of the organization to learn as the company bears the potential for such processes to take place. The stimulus therefore does not represent a trigger for organizational learning processes but is seen as an important factor regarding the content of the learning process. It is difficult, however, to clearly distinguish between reactive and proactive learning processes as they often take place simultaneously.

For the brewery Ottakringer in order for learning to be triggered, an external stimulus is the necessary condition. As the organization faced many changes in its environment during its long history, the organization developed mechanisms to recognize stimuli as relevant that do not directly influence the organization. For example changes in legislation, the exit of the beer cartel, changing customers tastes concerning canned beer were sensitively recognized at a time when they did not have an impact on the organization. The organization, however, engaged in a reflection process about the possible consequences and problems for Ottakringer that might emerge from these circumstances. On the one hand environmental changes induced the

organization to learn, but on the other hand the involved anticipation process of resulting consequences can be seen a proactive component of the process.

C) Bocconi Research

Bocconi focused its analysis on entrepreneurial processes linked to innovation in order to see what conditions improved the learning process and increased the probability of market success.

Although in an entrepreneurial context a single person – i.e. the entrepreneur – plays a pivotal role in the development process, this person rarely possesses all the competencies required for the success of the venture. Typically, the entrepreneur possesses a good knowledge of the market and a certain degree of technical competence in his field – this is the case, for instance of Mr. Polti, Mr. Tosi, Mr. Spinetti , FuturePlast's Mr. Guzzoletti and Petroltecnica's Mr. Pivi, - that combined with creativity and insight lead to the generation of potentially valuable business ideas. The actual realization of these ideas, though, often requires not only financial resources, but also skills and competencies that are to be sought elsewhere. In many of the observed cases, especially in the smallest companies like FuturePlast, MicroAlgae and Petroltecnica, these competencies were obtained from partners or from external consultants that were called in as required.

In an entrepreneurial context, then, learning often arises from the interaction of a number of actors that are in part external to the organization. The range of actors involved in the learning process, in fact, extends from the entrepreneur – locus of coordination and impulse for the projects – to his immediate collaborators inside the company (technicians, engineers, marketing people, etc.) and finally to a web of external partners, consultants and suppliers, whom contribute specific knowledge and competencies to the project. Evidence from the observed cases suggests that these actors contribute to the learning activity by combining i) codified knowledge of technical and scientific nature, and ii) tacit knowledge and expertise of different nature, with the entrepreneurs' ideas, sensitivity and practical market knowledge.

The help of one or more scientists – a physicist in the first case, a team of biologist in the second – was fundamental for the success of the observed processes at FuturePlast and MicroAlgae. In both cases, the scientists did not only provide a basic knowledge in the field of physics, but also acted as a boundary spanner with external academic institutions, helping the entrepreneur to contact, select and interact with these external partners. Moreover, all the observed projects could not have been completed without the help of one or more engineers (electronic, mechanic, software, etc.), who provided the competencies required for the actual design of a functioning product or process. Petroltecnica, for instance, asked an external design firm to realize the first

prototype of Bruco – a robot designed for the cleaning of large oil tanks – as the company did not possess the competencies required to transform a set of ideas and operating requirements into detailed technical specifications. In the MicroAlgae case, the contribution of engineers that knew little or nothing about micro seaweed, but had a better knowledge of all the available technical solutions proved to be an important step in the advancement of the project. In this respect, Mr. Tosi regretted to have relied on a local individual firm for the development of the mechanical part process, because he later discovered that more advanced and efficient electronic solutions for regulating could have been used, if only they had turned to a professional engineer or designer. More in general, our observation suggests that, whereas the entrepreneur identifies the problem and sets the boundaries of the field where a solution has to be searched, engineers provide a range of potential technical solutions that will be later subject to a validity test and to the entrepreneur's choice. Finally, as emerged more clearly in the cases of Polti, Parma, Microalgae and Serigrafica Tosi, some form of tacit knowledge was required for the completion of the project. Part of the technical knowledge involved in the design of vacuum cleaners or banknote sorters, for instance, it is not codified in manuals, models or procedures, but it's the product of experience. If a company with no previous experience in the field wants to learn how to do it in a reasonable time and at an affordable cost, the only way is to hire somebody with experience that can transfer that knowledge to the company. In the case of Polti, for instance, as vacuum cleaners were new to the company, they hired a retired engineer that could assist the company in the initial development of the first line of products. Tacit knowledge need not be of solely technical nature – at a certain point, for instance, MicroAlgae hired an expert in start-up management, who did not only knew 'how', but also 'what' – and it is often purely practical. According to Mr. Tosi of Serigrafica Tosi, for instance, an important part in the success of the process was due to an experienced worker, that often found the solution to practical problems that neither an engineer nor Mr. Tosi himself could solve.

In an entrepreneurial context, then, learning requires active management of a web of relationships in order to:

-identify and select sources of knowledge and competencies required by the process;
-integrate these 'knowledge chunks' along the learning process;
-maximize the retention of the generated knowledge.

As the first issue is concerned, we have already mentioned the importance of boundary spanning roles. Cohen e Levinthal observed how the ability to exploit external knowledge is a critical

component of the innovative capability of a company, and they showed how the ability to evaluate and utilize outside knowledge depends on the level of prior related knowledge possessed by the company. Related knowledge includes basic skills, a shared language and up-to-date knowledge of the most recent scientific or technological developments in a given field. In entrepreneurial ventures that build on scientific knowledge platforms and require the performance of activities of scientific nature (lab tests, trials, etc.) these "absorptive capacity" becomes crucial: internal scientists often provide the requisite knowledge, the language and the legitimation to interact with academic institutions and profit from their collaboration. This was the reason why, an increased in the complexity of the development activity carried out at FuturePlast soon called for the employment of a skilled physicist who could assist the entrepreneur in the understanding of the fundamentals of physics and optics required by the new projects, help him in contacting and screening external partners, often reluctant to collaborate with a counterpart that lacked an academic background. When Microalgae enter a later stage of development and, from a small research lab where external academics conducted experiments in their spare time, became a research company with a range of external contributors, permanent staff was selected on the basis of their capacity to interact with these contributors, rather than on their previous knowledge in the field.

Prior related knowledge, however, can be a double-edged weapon: one of the main reasons of Microalgae's success seems to be related actually to the lack of prior experience of the permanent staff. The idea of selecting people that had not been researching on seaweed before produced a staff that approached the problem from a new perspective that ultimately proved to be successful. Although they had to re-start the learning process almost from scratch, they bore no intellectual filters and were not conditioned by the schemes that had led to the previous failures. Much in the same way, Polti approached the design of a vacuum cleaner free from all the taken-for-granted assumptions regarding size, price, distribution etc., which constrained competitors that had been in the field for decades. Successful entrepreneurial learning is often based on the capacity to test and overcome widespread assumptions in an established business – paradoxically, the absence of previous experience may be beneficial to the development of innovative solutions.

As regards the integration of knowledge along the process, evidence from the cases suggests that, because required knowledge is distributed across a network of independent actors, successful learning requires that the reward system that connects these actors is consistent with the distribution of relevant competencies. In other words, all the holders of critical knowledge should share an interest in the success of the learning activity and their rewards should be related to it.

The comparative analysis of a successful and a failed project within the same company (FuturePlast) showed how one of the discriminating variable between the two process was the absence of an incentive for the critical actor in the preliminary stage of the failed project (an academic research laboratory): the project never went beyond the first stage.

Finally, as retention is concerned, a critical issue for entrepreneurs, as the experiences of FuturePlast, Parma and Polti have shown, is also how to appropriate the tacit knowledge that is involved in the learning process and often becomes an integral part of its results. Evidence from the case show that the acquisition of tacit knowledge can be facilitated by i) hiring competence-bearers and stimulating socialization and knowledge transfer within the organization, and ii) keeping direct control of and participating to all the development activities where critical learning takes place.

A comparison of a successful and an unsuccessful projects at Futureplast indicated that one of the discriminating factors was the possibility, in the first case, to conduct most research activities in in-house labs, built and equipped for that purpose. In the cases of Microalgae and Petroltecnica, decisive steps in the development process were made when Mr. Gregorini and Mr. Pivi respectively decided to move research and development activities closer to the headquarters. In the first case, research did not make much progress until Gregorini moved the labs from southern Italy to Switzerland, where he could personally supervise the development of the project. In the second, Mr. Pivi, who had initially contracted two companies located in Pordenone – more than 300 km from Petroltecnica's headquarters are in Rimini – on the basis of their distinctive competencies, was later forced to change partners, and chose two companies located in Ferrara and Rimini, the collaboration with whom proved to be much more effective. Building on our evidence, then, we could suggest a sort of 'learning-based' theory of the firm, according to which a firm, which is part of a 'learning network', should directly perform, or at least keep a high degree of involvement, in all the activities where learning takes place, as contracting out these activities means reducing the amount of valuable knowledge appropriated in the process, and losing control of them may reduce the pace and effectiveness of learning.

D. NHH resesarch

The Norway partner's approach to learning processes was to recognize that the context embedded in firms is important and that the actors involved are important in learning (and doing). As the rest of the partners, the Norwegian partner also recognised that learning could take place at different levels, e.g. at the individual, group, organization, and also at the network level (see "Literature Review", and for insightful discussion Miner and Mezias 1996).

Specific learning often (usually?) has some antecedent, e.g. exposure to a new problem that may trigger off the learning process. They also assumed - as done in much of the literature - that relationships and networks are important, e.g. because information can be "sticky" and does not flow easily in particular when tacit, but because of actors' limited capacity, i.e. they are not omnicent, but restricted in their focus and capacity to register and interprete. Relationships may allow for access to information and opportunities, but also for being preferred due to previous experiences and established trust (for excellent discussion, see Gulati et al. 2000).

In their perspective it was assumed that learning processes (can) take place, and that they occur in context. It was also believed that some antecedent factors trigger off learning processes. The perspective is, however, indicative. Because we don't know ex ante how the processes are taking place, how they are influenced by cultural and social factors, a key job is to identify the processes and influencing factors. Thus their perspective was meant to guide - not dictate our investigation. This is in concordance with the stated project objective - and in line with the chosen research methodology (see Deliverable 2: "Empirical Research Design for the Purpose of Identifying Learning Process in SMES").

To trace the learning processes they chose, like the Sitalian partner to focus on capturing key events - from the start over time. This was done in retroperspective. Because they

had the opportunity to follow some of the cases over a substantial period in time, some of the learning processes are also studied partly in real time.

The reason to focus on key events was that they usually are significant, and represent salient information more easy to remember and recall (as reflected in the research methodology literature, cf. e.g. "the critical incident approach").

In their mapping of the learning processes, they applied multiple data sources (see case descriptions in deliverable number 4). When available they made use of secondary data, e.g. brochures, annual reports, internal memos, available industry reports and public documents to familiarize themselves with the companies, their product/service offerings, developments and industrial and competitive contexts. This also allowed for identifying key actors.

The Norwegian team pointed at some key aspects of the national context of importance to understand the cases to be reported. For that, they described some special characteristics of Norway and of the structure of SMEs in the country. They pointed out that Norway is a small country (4.4 mill inhabitants). The economy is very open. Due to the very limited domestic markets many firms are dependent of sales to outside markets. It should also be noted that most firms are small and medium-sized. In fact the fraction of larger firms are smaller than in the other Nordic countries (Sweden, Denmark and Finland). In this country great emphasis has been on creating jobs, as it for long was a key goal to keep unemployment low. In fact, it was for long a declared "right" to have a job. Some of these cultural aspects were important for the development of deliverables number 5 on cross-institutional comparison of the cases, and number 7, which refers to the policy implications.

Multiple governmental agencies play a very active firms in the creation of new firms and activities to create new jobs. Beside various types of financial supports, there are multiple institutions offering technical and commercial advice giving. Due to the smallness of the country - and thus the lack of a domestic market, it is often - in particular for more specialized products and services - difficult to conduct adequate testing and gain experience at home before going internationally - as assumed in much of

the literature on internationalization. An interesting observation is that governmental agencies and state owned companies often serve the role as "pioneer customers" allowing for product testing - and getting "references".

The major findings of the Norwegian partner can be condensed in the following points:

1. Recognition of a problem

NHH findings reveal that learning processes seemingly are initiated by recognition of problem or opportunity. The capacity to notice and make sense of observation thus becomes critical. Because of the many tasks, scattered attention and limited mental capacity, a key question then is whether small and medium-sized business are restricted in their learning capacity (more then are larger companies), and whether and how it is possible to enhance the learning capacity of small and medium-sized firms. This question is important, as larger firms seemingly become more dominating in many (most) industries.

When looking across cases it is observed that several of the learning process traced are initiated by “discovery”. In the case of Syslab, for instance, the learning aspect in this case starts with the recognition of the overlooked problem, i.e. unemployed, highly educated academicians. Apparently, the problem has been overlooked to the fixed preconception of unskilled works, binding blinding for new insights. Observations and reflected thoughts also resulted in the idea of how the problem could be attached. These motivated and goal-directed activities also resulted in insights regarding and contact with potential partners.

This capacity of recognizing an unsolved need as a trigger that starts a more rational, goal-oriented, and trial and error type of learning, is also exemplified in the case of Proserv. When Proserv first entered the industry, it did so almost by "accident". Through a personal acquaintance, the company came in contact with an oil company . Through this connection Proserv learned about product characteristics, the industry, competitors and so on. This information - combined with its technical skills and competencies allowed Proserv to construct a vision of how to enter and succeed in this particular industry. Building on its basic competencies it constructed a low-cost transportation bottle in stainless steel.

Though its close contact with users Proserv also discovered an unnoticed problem, i.e. the weight problem. Interestingly, the problem was observed by Proserv, also indicating that problems are not given, but must be sought for and/or discovered (Dillon 1982). There are several reasons why

Proserv discovered this problem. First, the company was in close contact with its users. Contact and interactions with users ease flow of "sticky" information (cf. con Hippie 1994), and allowed Proserv to learn about the actual context, and thus discover an unnoticed problem as well as envision a solution to the problem.

There might be several causes why this unsatisfied need has never been identified before. Sometimes this is due to the fact that companies within that context are conditioned by their previous knowledge. The reported findings indicate that learning relates to problems and opportunities in the immediate context of many small and medium-sized firms. Sometimes, limited context views may hinder innovative solutions or the recognition of unsatisfied needs.

Contextual knowledge is important, it gives focus. It is, however, possible that the (narrowly defined) contextual focus "bind and blind", and can end up primarily focusing on opportunities/threats within and/or departing from the present domain as reflected in the Proserv- and the Aiwell-case. This phenomenon has been addressed in previous research, e.g. in the search theory by March and Simon demonstrating that past solutions tend to dictate future search - and thus also future learning.

In the case of Proserv, for instance, users and buyers of the product not only belonged to different departments, they were also separated in space. The users worked offshore, while purchasers operated on-shore. They also differed in interest, and emphasized different criteria in their evaluation of products. Buyers (purchasers) emphasized price (costs), while users emphasized use aspects of the product. Purchasers were also evaluated according to their cost effectiveness, i.e. their ability to keep budgets and reduce costs. Thus the vested interests hold by the purchasers can explain the difficulties in selling the new lighter bottle. In the present case the purchasers acted as "gate-keepers" making it difficult get a development contract and thus accept for a new solution. Purchasers were only interested in price and they did not pay attention to the unsolved weight problem of bottles because it was not part of their mental framing.

2. Constrained Knowledge and Resources

An interesting - across case observation - is the finding that knowledge held at the outset are restricted - and beliefs (visions) of what "works" often is limited and even wrong. This is observed in many (most of) the cases. For example, in the spite of its superior technological knowledge, Proserv A/S ran into technological problems. Tandberg Vision underestimated time - and cost - requirement, and in several cases the enterprises misjudged customers (the market's) appreciation of and willingness to adapt their solutions. As often is the case, market accept and

take off - frequently take substantially longer - and requires more resources and efforts than expected. Such “negative” experiences initiate reflection, rethinking - and often - active reconstruction of ideas how to proceed resulting in, i.e. changes in perspectives and actions.

A closely related observation is the observation that several of the small, new enterprises (see e.g. Aiwell A/S) discovered the need for additional and complementary resources ex post. In other words, as noticed by Simon, the “problem space” is gradually uncovered. In fact in none of the cases the enterprises (or coalition) were selfsufficient with regard to knowledge and other resources, but depended on successful exchange, interactions on relationships with others.

3. Relationships and Networks

An interesting across-case observation is the prevalent role of relationships and networks. Information is partly sticky and incomplete, making it (partly) difficult to make good à prior evaluations, seemingly resulting in that recognition of or prior experience with the enterprise are needed to be taken into account by potential customers. An interesting observation that Tandberg was chosen as industrial partner- in spite of the company’s prior bankruptcy. Seemingly it was chosen based on the prior reputation of Tandberg – as well as prior experiences with the company. Relationships and access to networks are not “given”. They come out of longitudinal – and hard work. Relationships, networks and network-positions develop and change. This is in particular demonstrated in the case of SM Steinsvik Maskinindustri A/S. This case also show that relationships allows for access to information, opportunities and learning, that networks and networkspositions represent a valuable resource that both can grow (decrease) and change.

Many small- and medium-sized firms possess few or modest relational and network resources. It requires visibility and reputation to enter attractive relationships and networks to become visible and enjoy reputation. A key challenge is thus to rethink how small- and medium-sized firms can improve their access to important relationships and network, and their knowledge and skills in "networking".

3.1 .3 Learning processes and cultural contexts

In order to better grasp the influence of national cultural contexts in the companies studied, we decided to follow an institutional approach. We focused on how institutions shape learning processes in the four different countries.

The following is an extract from deliverable number 5, which was entirely dedicated to this issue. In this extract we compared the similarities and differences between the institutional contexts in the four countries :

1. Institutions as triggers of learning processes

As regards types of institution, public and governmental agencies seem to play a major role in Norway, whereas professional and industry actors do it in Austria. In the case of Spain there is no prevalent type of institution. Instead the institutional framework is formed by a broad range of actors, including government, the educational system, networks and industry associations. In Italy the role of institutions as shaping the context of organisational learning processes appears to be less relevant.

Most of the learning processes triggered by institutions are triggered by government agencies. In Spain and Austria this is done through legislation, whereas in Norway the process is less normative and involves setting goals or providing support rather than compulsory means such as legislation. In the Norwegian cases we see how public and government-supported agencies play an important role in supporting and helping foster new businesses. Public institutions provide advice, financial support, contracts as well as contacts.

In the Austrian cases, the role of the government as provider of resources is much less pronounced. We do, however, find that trade and industry associations (the Chamber of Commerce) play a more or less equivalent role, as do professional associations. Legitimating processes are remarkable in the Austrian cases. Resources can be both physical, such as economic means, or intangible, such as legitimisation. The former are frequent in the Norwegian cases and the latter in the Austrian cases. In these cases, the search for external legitimisation induces organizational behaviour and affects learning process. Some processes that otherwise would not have developed, do.

In Spain the educational system sometimes appears to be slow in providing the training required for new or specific industries. This leads people to acquire mixed educational backgrounds or complete their education with experience in other fields of activity.

2. Institutional contexts and learning processes

The second dimension used for comparative analysis is the effect of the institutional context on learning processes. There are several effects: institutions help start or trigger learning processes and create the conditions for these learning processes to develop. These conditions take the form of setting up communication channels, establishing procedures for sharing information, or supplying resources that make these learning processes possible. As regards this effect, the most remarkable difference between the cases of different countries is the relatively greater use of direct financial aid in the Norwegian cases. In Austria and Spain favourable conditions are the creation of the communication channels, and, in the Austrian cases, legitimation processes became learning opportunities. In the Italian cases the conditions that facilitate learning have to do with boundary actors that are able to speak both the language of entrepreneurs and the language or researchers and technical personnel

3. Density of institutional context

The third dimension of the analysis was density of institutional context. This could be seen as a country characteristic, such as the abundance of institutional support in Norway, or as an industry characteristic. For instance, Med Trade sees the strong institutional context of the medical industry in Austria as an opportunity to learn by. In Spain, a weak institutional context in the TV cartoon industry mades the company (Cartoon) a pioneer in establishing networks and institutionalizing training programs.

Apart from the above-mentioned dimensions, there are some other observations to be made about the data analysed. These deal with geographic (Norway) and industry characteristics.

Industrial collaboration in Norway appears to be largely based on physical proximity, small businesses cooperate with neighbouring firms. This may reflect the dispersed industry structure in Norway which makes physical distance important. We also saw how industry clusters are built up around a few large industrial customers, as in the case of SM Steinsvik (Statoil and Shell).

Some learning patterns may be related to industries rather than countries. This could be the context shared by companies like FunTV in Austria and Cartoon in Spain may share. Both work in relatively new fields of activity. These fields may not be technically new, but are new in the specific environment where the companies operate: FunTV in the recently deregulated Austrian TV industry and Cartoon in Spanish TV cartoon productions. Both companies have trouble finding qualified employees so both companies must invest resources in training and providing people with the necessary knowledge. The problem is further aggravated in Fun TV by personnel turnover. There seems to be a lack of institutional structures (educational systems, labour market) that could help make the required knowledge available to these companies.

3.1.3 Learning and competitiveness

Knowledge usually is an important aspect of any kind of competitive advantage, and the improvement of learning capacities constitutes a condition for acquiring and managing it. So, there are close relationships between learning and competitiveness. However, these two concepts cannot be simply equated, because competition between companies depends on many other factors. In a summary, our claim was to understand the ways in which companies learnt, and how learning improved their managerial performance and constitutd a good asset for acquiring a competitive advantage.

In this vein, learning processes in the firms analyzed were frequently linked to product innovation, organizational change and environmental adaptation, increasing the competitiveness of these firms.

Hereby, we describe the role of learning processes in these three areas. The following is an extract from deliverable number 6, which precisely dealt with this topic.

1. Product innovation

We saw the important role of the main decision-makers in SMEs in initiating, co-ordinating and motivating the innovation process. Organizations often learn about potential new innovations from the web of agents with whom they usually deal (i.e. banks, customers, suppliers, etc.) (Gibb, 1997). It is often said that "necessity is the mother of invention" and it is true that innovation often starts as a problem which needs solving. The reaction to the problem triggers innovation. As we saw, problems in keeping abreast with technical changes introduced by suppliers led Tosi to produce its own tile decorating technology. In other instances, firms like Infogestión developed procedures to detect their customers' unsatisfied needs so that they could upgrade and extend their existing services.

The network of previous contacts and the technical background of the decision-maker are particularly crucial when the firm has just begun trading and the web of actors mentioned above is still new. In the case of Musexpo, getting expert opinion helped the company decide which potential lines of development it ought to follow up. In other cases, the previous experience of the founders was a relevant factor in getting funding from public (Steinsvik) and private institutions (Microalgae). In all cases, the decision-maker had to show flexibility and judgement so the project could accommodate the interests of all the research partners, yet still respond to the firm's

needs. In the case of Steinsvik, the company had to accept public policy norms in order to obtain the funding. In other cases (Tandberg, FuturePlast, Cresto, Proserv, MicroAlgae) the project required collaboration between the parties (i.e. other firms, scientific and banking institutions) and problems arose from the different objectives pursued by the research partners. To be successful, it is vital to grasp the goals of other project partners, draw up appropriate contractual arrangements and manage the relationship in such a way that everyone is kept reasonably happy.

Turning to the acquisition, integration and storage of knowledge needed for a project's success, we saw how effective management of technical staff not only enhances technology-linked skills and tacit knowledge but, more importantly, provides contacts with key external agents (Musexpo, Infogestión, Tosi, FuturePlast). Clear incentives and training programmes enhance their performance. Examples of this approach include setting up inter-disciplinary teams (Metallica); involving employees from industrial and commercial parts of the organization; and even including external actors such as clients, suppliers, scientists, etc.

It is also important to control the project's core knowledge. This can be achieved either by involving staff members at all stages of the project (FuturePlast) or by creating norms which establish what needs to be learnt and what does not. (Ottakringer).

2. Organizational issues

Most of the 24 SMEs we studied had grown considerably in size during the previous ten years. There were few exceptions; Vins, one of the more successful firms, had remained small because its vineyards imposed a size restraint. Other SMEs, like Aiwell, grew slowly to avoid losing control over the firm's activities. As seen in the previous section, most firms adopted a variety of growth strategies: some expanded geographically while others stayed in more or less the same markets while introducing new products. Both approaches improved firms' competitive position. As Vins and Aiwell show, a firm does not have to grow to remain competitive. Nevertheless, many SMEs today need to expand so that they can meet the challenges of new markets and launch new products. In this connection, we also examined the impact firms' organizational structure and corporate culture have on companies' competitive position and their capacity to learn the right lessons in this respect.

We have seen the importance of setting up routines and processes to store organizational knowledge. In some cases, the creation of a formal structure is the result of company growth which forces the founders to relinquish personal control and establish sounder management

systems. This was true of Ströck, a firm which was in the throes of hiring professional managers capable of running the firm's daily operations. This shift towards professional management poses challenges to a firm's corporate culture when the founder's personal style and values clash with those of the incoming managers.

In other cases there is a need to facilitate knowledge transmission between different parts of the organization. In Escola' case, the firm realized that it needed to bridge the gap between the publishing and sales sides of the organization. The company decided to create the post of educational advisor for this purpose. The person chosen for the job had a mixed background (a sales representative with knowledge of teaching). His task was to ensure the publishing department provided information in a form the sales representatives could readily assimilate and vice-versa. One of his jobs involved translating the editors' teaching principles into sales language.

In Metallica's case, knowledge was pooled from different parts of the firm in order to encourage innovation. This approach involved: setting up volunteer-manned improvement groups; training middle managers; frequent attendance at trade fairs to get new ideas; and active participation in research projects.

We also noted that some of the firms introduced procedures to foster creativity and employee participation. Ottakringer, Metallica and Musexpo provide several examples of this. Metallica motivates its employees to lead innovation project teams by rewarding volunteers with specific team management courses. In the case of Ottakringer, we saw how the incentive scheme flopped, with employees failing to co-operate in the staff suggestion scheme. Incentive schemes do not work unless there is a demonstrable commitment by the firm's management team.

We also explored the organizational implications for those firms which had managed to establish networks. Sometimes SMEs anticipate market trends by participating in institutional networks (e.g. Ottakringer and its relationship with a large Austrian brewer's association). In other cases, such as Infogestión and Vins, the SMEs forged useful links through informal networks (by attending Trade Fairs and through informal meetings with suppliers, consultants, etc.).

3. Adapting to the business environment

This section covers two issues. The first concerns the ways firms go about interpreting their business environment. The second deals with how companies act when they detect changes in their business environment. The firm's strategy should ensure the firm is capable of moulding itself to its business environment at any given point in time (Strategic Fit: Grant, 2000).

We noted earlier how decision-makers are the ones to whom the task of interpreting the business environment naturally falls. Most of the information is passed on by the main actors (customers, suppliers, banks, etc.) with whom the firm has an on-going relationship. Some firms had established routine trade visits (Tandberg) and marketing trips (Metallica), both of which provide business intelligence.

In some cases, firms saw the business environment as a source of new opportunities (Escola, MicroAlgae) – a perception which led directly to the creation of both businesses. In other companies, the business environment was perceived as threatening – a view which triggered the firm into action. In Musexpo's case, the company learned valuable lessons from an economic crisis which threatened the company's very existence. The firm responded by learning how to work on a network basis, with a small core of stable staff and a much larger number of co-workers who were used on a project by project basis.

We also noted how certain characteristics of the industry affected some of the firm's learning processes. New firms which can draw on standardized technology have an easier job of setting up their own production processes and finding people with the requisite skills (even if it means pinching staff from competitors). However, many of the production processes have to be created from scratch when the firm's activity is part of a new sector (Infogestión), thus entailing tailor-made training (Cartoon, Infogestión).

3.2 Methodology

As we have already stated, our project main strength was that it intended to collect and analyze empirical data regarding how SMEs learn when carrying out 'innovative activities'. It was, thus, an exploratory study. We did not want to test any hypothesis but rather start to envision the learning 'landscape' in the context of SMEs.

Additionally, as we emphasized in the beginning of this section, we understand learning processes from a highly contextual point of view. Therefore, we decided to adopt a phenomenological approach, related to the methods of life stories and hermeneutical interpretations.

We initially wanted to study the learning processes that take place in SMEs when they carry out "innovative activities". These activities can be several: the launching of a new product or service, a reaction to an unexpected problem, the development of new working processes, the start of a new project such as the internationalisation of the company, the setting up of a company, etc. Although routine activities can also involve learning, we felt we should look for companies where innovative actions could serve as proxies for learning. In the course of the fieldwork we saw that day-to-day activities were also interesting from the learning point of view.

Easterby-Smith and Araujo (1999) classify empirical studies on organizational learning according to five criteria: role of the researcher, methodological approach, unit of analysis, focus on learning and epistemological stance. We could situate our own contribution in terms of this classification by saying that the researcher was detached and distant from the processes being investigated (role of researcher); we undertook in-depth case studies of one or a small number of organisations, as opposed to survey-based comparisons across numbers of organisations (methodological approach); we looked at total organizations rather than at micro practices within the organizational or trans-organizational setting (unit of analysis); we focused on internal processes rather than on outcomes as indicators of organizational learning (focus on learning), and, finally we aimed to describe practices and then conceptualize, rather than applying specific theories to the phenomena observed (epistemological stance).

1. Case studies

In deliverable 2, which described our empirical research design, we focused on Yin to explain why we chose case studies as part our research method.

Yin (1994) provides a definition of case study, as follows:

"A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, specially when the boundaries between phenomenon and the context are not clearly evident. (...) the case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulation fashion, and as another result, benefits from the prior development of theoretical propositions to guide data collection and analysis" (page 13)

The key aspects of Yin's definition are:

-the context is relevant;
-there are many variables that interest us
-we need multiple sources of evidence (we need triangulation)
-there is a prior development of theory

He considers case studies as a research strategy, one of the five research strategies that he takes into account: experiments, surveys, archival analysis, histories and case studies (Yin, 1994).

If we pay attention to the key aspects of Yin's definition described above, we will see that all of them suit our study. In the first place, our research was very contextualized. What we intended to understand was how managers and companies reacted and learnt from their errors when they had to face new problems. This was done through inquiring aboout their actions and trying to understand what were the intentions and purposes that lied behind. At the same time, we were looking to cognition, behavior, organizational culture, structure and other significant variables to be able to have a holistic picture of the learning process. Thus, we were not only interested in one variable to which we could look at 'ceteris paribus'. We made interviews to several managers in each company in order to have multiple sources of evidence. Finally, there was also a prior development of theory based in the literature review that we initially carried out. The four research groups worked with the guidance of the model that we described in the previous section (context, actors, processes, outputs and outcomes).

2. Data Collection: Interviews

Before starting the fieldwork we thought about the kind of interviews we would be interested in carrying out. We found it helpful to write some recommendations about the interviews. For instance, the interviews would take about 1'30 and 2 hours, they would follow the assumptions and guidelines of in-depth interviews in which the manager would explain his or her experience in the innovative process the company is undertaking, etc.

After writing these recommendations we proceeded to start reflecting on the learning themes and sub-themes identified in the literature review. We identified generic topics like types of knowledge, types of learning, sources of learning, learning actors, learning styles, transmission of knowledge, organizational culture, etc. We then thought of different questions that could help elicit information about company activity on all these points.

During the pilot case, we adapted the interview model to the specific circumstances of the company we were going to visit. We had collected information from secondary sources and knew a little bit about the company. We also listed the different learning topics that we expected would come up in relation to each point.

For instance, in the pilot case we knew that the company had decided to develop its own patents and that this decision was a key to the company's success. We therefore decided to ask: "How did you realise that you had to develop your own patents?" We also expected that the answer would tell us something about the sources of learning, the relationship between learning and strategy, experiential learning and the issue of vicarious learning versus knowledge creation.

However, there are significant differences between these beginnings and the final kind of interview model we used. We soon realised that some questions that apparently posed no problem would nevertheless be difficult for interviewees to answer. For instance, the question, "What does your company do better than others and how did you manage to maintain your market position?", which we hoped would identify how the company had learned to develop certain core competences, was too specific for cosy conversation in which important ideas might arise. Interviewees either felt uncomfortable or gave very brief answers. We wanted the interviews to be as much like a conversation as possible and questions of this kind did nothing to create the right kind of atmosphere. However, answers to these kinds of questions did come out in the interviews.

We intended to follow the thread of the interviewees' discourses and not to subject them to an overly structured interview format. On one hand, we feared that if we asked too many specific questions we would turn the interview into a mere questionnaire and lose relevant information such as what interviewees' intentions were when they performed certain actions. On the other hand, we did not want to discover after a two-hour interview that we had obtained little productive information for our research.

We designed a flexible interview format. We knew that there were some questions that had to be asked. For example, we would always have to ask what interviewees thought about training in their particular company or industry. However, we were pleased to discover that most of the interviewees talked about training issues naturally without our having to explicitly ask about them. The same occurred with other topics, such as the way they worked with peers or how they thought that new ideas were born.

During the interviews, we discovered that when people talk about their working lives a number of topics related to learning processes come up quite naturally. Most of the time the interviewee is not even conscious of this. Questions like "could you give us an example of what you are saying?" or "so what you are actually saying is that..."' help interviewees continue their narrations and reveal some points that may seem obscure to the researcher. It is important to be able to follow the thread of the conversation, intervening in order to lead the narration to those issues that the researcher finds interesting for the purposes of his study.

In the very first interviews we learned that it was advisable to pose questions that were easy for interviewees to answer, enabling them to talk almost naturally about a particular subject and not stop to search for the "correct answer". We did not look for right answers in our interviews. What we wanted to learn about was the context in which interviewees developed their activities and why they acted in a particular way in certain situations and not in others.

We also realized that we ended up being very flexible in the way we asked the leading questions we had prepared. No two interviews were alike. Sometimes we would start by talking about a specific project the interviewee was involved in whereas in another we would start by analysing the relationship of one department of the company with other departments. In the end, most of the general topics addressed in the different interviews were the same and embraced the researchers' main fields of interest.

So after the members of the group had discussed what kind of questions we should ask, we decided to use a rather simple interview format that encouraged interviewees to talk as much as possible about their personal experiences. We also saw that we needed to slightly adapt the interview model to the profile of each person interviewed. We decided to write different scripts for the General Manager, the Production Manager and the Sales/Marketing Manager. These categories were broad enough to include several kinds of profiles. For instance, a freelance architect that worked for a company that designed exhibition projects fit into the "Production Manager" profile and so on. Many topics were the same for the three kinds of interviews.

As example, the final model for the 'general manager' was the following:

General Manager

- In which industry does the company operate?
- When did you enter the company?
- Production process
- Market: customers and competitors
- Company organizational structure
- Main projects recently undertaken
- Relationship with other firms and agents
- Way of work
- Personal appraisal

These questions were asked in several different ways depending on the interviews. Some questions would always be the same:

- How did you enter the company and what's your role in it?
- With whom do you work?
- When you decide to do X (an exhibition, etc.) how do you do it from the beginning until the end? Could you describe the process to us?
- Do you need training for that?
- How does a meeting unfold? Could you give us an example?
- Do you attend trade fairs? Do you get ideas from them?
- What do you particularly like of your job?

Each of these questions related to one of the seven parts of the interview. We always kept some of these seven main topics in mind in order to be able to start a new part of the interview in case that the conversation on one subject seemed to get stuck. The order of the questions was not relevant and was usually determined by the interviewees' answers. Whenever a particular topic came up in the conversation we tried to fully explore it before moving to another subject. Sometimes an interviewee talked about experiences that did not fit into any of our categories but that were nonetheless relevant from the standpoint of learning.

The interview was thus a kind of conversation with a purpose: learning about interviewees' experiences and what they learned from them. We acted as "informed interviewers" who had previously studied different theories on organizational learning. But we were not contrasting any particular hypotheses or models. We listened and observed rather than look for a model. We tried to follow their narration of events. This way we obtained from the interview a narrative of a part of a manager's "life story" that was related to his working experience in the company.

In addition to the interviews, we also collected other contextual data from company reports, brochures about the firms and its products. These materials were used for several purposes in the preparation of the interviews: first, they provided each of the teams with background information on general background aspects of the firms selected for interviewing; second, they provided relevant information to make questions more customised for the interviewees; and thirdly, they provided valuable background information to facilitate the process of "on-the spot clarifications" during the interviews.

*

Interviews conducted lasted between 75 minutes and 120 minutes, depending on the flow of the conversation and how well topics were being covered during its development. Once the themes were covered, we used a gradual closing method that included asking for clarification of potentially interesting leads that had been left out for the benefit of the interview's flow. Also, at the end of the interview we asked interviewees to add comments or impressions if they felt like it.

We audio-taped the interviews to facilitate the interpretation of the data at a later stage. In addition, notes about the setting and interviewee behaviour and demeanour were taken to complement and facilitate both the process of transcription and the process of analysis. The final step of the interview process was the transcription of all interviews. Accepted norms of transcription were used, noting significant pauses or intonation changes that could help in the interpretation of the materials.

3. Data Analysis

At the third partner's meeting which took place in Kingston, the partners agreed on some issues with regards to the analysis of the data obtained from the companies, in order to proceed with case writing.

Firstly, there was an agreement in using coding as the main instrument for interview analysis in order to build up the writing of the cases. Coding the interviews forced us to be explicitly mindful of the purposes of our study, while allowing an open mind frame to unexpected ideas stemming from the interviews. We agree with Miles and Huberman (1994) in that coding is a safeguard against tunnel vision, bias, and self-delusion, which are inherent problems in any research effort. Coding also provided a useful instrument in organising a system for categorising the various chunks of information, helping us quickly find, pull out and cluster the segments relating to a particular research question.

It was important to follow an iterative process of coding and re-coding in order to refine the information in the interviews so that a common body of "narration" could be pieced together from the single interviews.

The issue of how to create the codes was left to each team. The chosen method of creating codes was that of creating a provisional "start list" of codes prior to the field work. A list of 14 basic codes was handed out drawn up from the conceptual framework elaborated in the first three months of the project. Also important in drawing up the codes were the general research issues and problem areas we were focusing on in the project as a whole. Each of the codes had to have an agreed concise definition, that was tight enough to hold clear defining power, but loose enough to capture relevant "chunks" of meaning. Each team was invited to revise the list adding and/or deleting what codes did not suit their particular context. Once the initial "master code" was decided upon, it was used on one set of interviews from one of the companies. That allowed for each team to revise what codes were useful and which needed substitution.

In this refinement stage, a more "inductive" approach was allowed, adding codes that fit the data. In this stage, as Miles and Huberman (1994) mention "the analysis is more open- minded and

more context-sensitive" in that data "get well moulded to the codes that represent them, and we get more of a code-in-use flavour than the generic-code-for-many-uses generated by a prefabricated start list.

The possibility of using computer software was offered, but it was up to each partner to decide whether to use it or not. The Austrian and Spanish teams decided to use Atlas Ti 4.1. In order to get familiar with the software a three day seminar was conducted in February 2000.

The specific stages of how to conduct the coding and the case writing were left to manage by each team. As far as data presentation, it was agreed by all teams that there would be between four and six cases per country. This ensured enough diversity by country to conduct a cross-cultural analysis.

4. Case writing

The process of case writing was left to each of the teams. Some guidelines were agreed upon in the meetings of Kingston and Milan. The extension of the cases would not surpass 25-30 pages. Also, there should be an introductory first part in which the company had to be presented, its objectives, its main tasks and work processes. This would allow enough contextual information to explain the company's learning processes according to the particular instances and themes brought forward by the interviewees.

Since most cases were written in each team's local language, they were translated for the benefit of all other groups and the preparation of the main scientific findings that were Trans-European as stated in points 3 and 5 of this final report.

4. Conclusions and policy implications

In annex 1 of "The Work Programme" we identified EU policy makers as one of the three key target groups to which we believe the current research project could benefit. In particular, we identified the areas of education, training and general SME policies as important in relation to the focus of our project on learning processes in SMEs. The result of this work is contained in deliverable #7: "Considerations for Policy Makers in Training, Education and SME Policies: Lessons Drawn from the Identification of Learning Processes in SMEs".

Deliverable 7 is construed as an effort to explore some policy recommendations at a macro level that have been raised on problems and issues we have found when exploring at a micro level the learning processes of 24 SMEs. We think this is an important and complementary inductive effort to the more usual quantitative research methods used to analyse and describe the situation of SMEs in the EU. On the one hand it has allowed us to frame learning processes within the enormously complex reality of each of the 24 SMEs firms, and on the other we have been able to understand these learning processes from within the contextual factors in which they have arisen.

As stated in the deliverable #7 it should be noted that we have limited our set of recommendations to training, education and SME Policies in relation only to learning processes. Implications of our study in regards to other important policy areas such as women's opportunities or unemployment policies have not been the object of the study.

It should also be noted that the policy implications stated in this research could, in principle, be implemented in all European countries and at any level of government. The implementation of these measures will depend on many specific factors like the its very nature, or related to cultural, social, and other aspects, which are necessarily outbound from this research project.

For the remainder of this section we will summarise the main recommendations and policy implications contained in deliverable #7.

4.3.1. Training policies

As stated in deliverable #7 we define training as "the formal classroom-based transfer of knowledge" (Marsick and Watkins, 1990). Specially important to SMEs is the issue of "continuos training" (life-long training) , which covers training provided by SMEs after initial education and received by currently working persons, both as a firm or personal initiative.

Training in SMEs is linked to its size. The number of companies that provide training varies from 19% in the case of firms without employees up to 79% in the case of medium-sized enterprises, according to the 6th. Annual European Observatory for SMEs Report (December, 1999). Also, larger SMEs tend to plan their training activities to a higher degree than smaller sized ones. On the other hand, in terms of the cost of training activities as a percentage of revenue, the figures are similar regardless of SMEs size.

In the following table we have summarised the issues and policy actions we have detected in deliverable # 7 with respect to training.

Summary of issues and policy implications in the training area

Issue detected	Recommendation/policy action
SMEs find training courses too broad in scope, failing to meet their specialised needs. This issue is specially important for new employees with a need for specific technical knowledge/skills	- Foster training programs which are experience-based and tailored to the particular needs of firms to improve employees' capacity to learn from real world experience, due to possible lack of specialised trainers - Encourage more specific training programs for new employees to learn new skills and transfer existing ones.
Lack of specialised training courses caused by SMEs low expertise in EU training fund access	Encourage EU-funded SMEs to join employer's associations and chambers of commerce in order to create industry-specific training courses
Universities and training centres do not always meet the training needs for new skills and knowledge derived from innovative processes	Policy-makers should promote training programmes between universities and innovative SMEs to create new training programmes in response to new products/markets with distinct competencies.
Managers in some SMEs tend to work on many operational issues and do not plan their training needs	Support and encourage SMEs manager's efforts to plan training programmes, and encourage their implementation.

Training serves not only to acquire new skills/knowledge, but also a s a means of widening their network of market specialists	Promote variety of training courses to maximise network opportunities. Courses should be particularly targeted at companies with low training levels
Increasing need for cross-skilled employees	Promote cross-skilled training programmes
Many SMEs appreciate language and basic software training (commodity training)	Promote “commodity training” since it increases future employability and diminishes chance of workers of becoming a long-term unemployed person

4.3.2. Educational policies

Many European states and regions are reviewing their educational policies, trying to offer the knowledge needed to cope with new changes in the business environment, the appearance of new types of jobs and the impact of information technologies. Issues of life-long learning and training or the types of skills demanded by the knowledge society demand educational policies that are versatile and flexible. Educational policies are currently enlisting companies and universities in an effort to narrow the gap between what is taught and what is needed in the workplace.

Educational policies should take into account several contextual factors that affect Smes, specially the smaller sized ones, such as: temporary absence of employees, manager "mental" barriers towards education and training, or difficulties in defining educational and training priorities. Also, educational and training costs, as well as the lack of transparency in certain European formative markets should be taken into account.

Summary of issues and policy implications in the educational area

Issue detected	Recommendation/policy action
Projects involving customers, companies and universities foster innovation in SMEs	Support collaborative projects between customers, SMEs and universities in order to create "relational capital"
We have found that SMEs that have been set up by entrepreneurs with strong business backgrounds but few technical skills	Promote university-level exchange programmes between technical and business schools. Focus ¡specially in entrepreneurs at the start-up phase to increase likelihood of company success
Entrepreneurs that with low technical skills use their network of colleagues and university faculty to evaluate company risk	Encourage business schools and universities to mentor entrepreneurs, helping them implement start-up business plans
Some managers and entrepreneurs have stereotyped ideas about training courses. Lack of contextualization, cost and time lag before results appear contribute to this stereotyping	Educational policies should focus on developing personal skills which could be applied to a wide range of job types

4.3.3. SMEs Policies

As stated in deliverable #7, there are many areas of interest to which EU institutions are directing their efforts in relation to SMEs policies: improving market conditions through promoting competitiveness; access to markets; entrepreneurship; improving the financial environment; simplifying red tape; and giving easier access to Community support systems.

In particular, the issue of innovation has been an important priority for the EU. The European obsevatory for SMEs and the European Network for SME Research, albeit with a wider range of interests, devote an important part of their reports to the topic of innovation. Some of the permanent priorities are: foster an innovation culture; establish a financial and legal framework favourable to innovation; and, to improve innovation and research co-ordination. Some of more recent priorities are: intensify the co-operation between research institutes, universities and firms; foster associations and innovation clusters; and, foster the creation of technologically based SMEs.

Summary of issues and policy implications in the SME Policy area

Issue detected	Recommendation/policy action
The involvement of universities and research centres helps to create, store and disseminate knowledge, while SMEs bring flexibility, market orientation and creativity to foster innovation	Promote research projects where customers, SMEs and universties or research centres are involved
The risk that valuable, specialised knowledge will be lost if firms fail to get sufficient funding	Support the development of venture capital markets for high tech companies as a way of fostering knowledge creation
Some of the firms studied have found problems in accessing skilled labour force	SME training and educational policies should be co-ordinated to ensure SMEs can find enough skilled employees
Some SMEs are not aware of EU institution efforts to cut down red tape for improved interaction with local/regional/national/EU administrations	Facilitate the relationship between SMEs and public agents, through the publication of main policy objectives, promoting the use of IT tools and reducing red tape
Trust in markets facilitates the development of knowledge, the relationship among organisations and	Policy makers should create the contextual conditions to ensure trust in market relationships. In particular, an effort should be made so that institutions and the legal framework fosters trust in markets

individuals and the creation of networks that facilitate knowledge storage	
We have found that trade fairs are important vehicles for innovative ideas in the SMEs we explored	Promote fairs at which entrepreneurs, investors and researchers can pool experience and establish networks fostering knowledge creation
Financial assistance and consulting services are important services provided by the public service; however, there is still difficulty in SMEs to bridge the gap of creating the requisite knowledge which meets client and market needs	Promote the role of “pioneering clients” among public institutions to facilitate a market which fosters SME development.

5. Dissemination and/or exploitation of results

The strategy of dissemination was agreed and updated at the regular meetings held by the partners. Each partner submitted their plan for presentations, publications, etc. Which was agreed by general consensus.

Some issues that were discussed that illustrate the strategy of dissemination were:

1. Each partner should come up with their own plan for dissemination, and present it to the other partners, for agreement.
2. We decided on starting early on during the initial stages of the project to start dissemination efforts, specially with the Academic Community.

3. Dissemination activities should be subject to the European Union norms and regulations on information dissemination of EU sponsored projects.

4. Once the project was completed, some procedures for the exploitation of the results were agreed:

4.1. Individual partner's dissemination efforts should take second place to whole research team dissemination efforts.

4.2. Partners could use research materials for exploitation and dissemination as long as they were presented to the rest of the teams for agreement.

4.3. Confidentiality of results will be taken into consideration for all dissemination efforts.

4.4. Due credit to the European Union should be granted by stating in all cases the project's name and ID number, as well as mentioning that the project has been funded with EU funds.

4.5. All dissemination efforts are encouraged, aimed at academic, business and public communities.

For the rest of this section we have enclosed three tables with a summary of all research dissemination efforts, stated by year, type of event and persons/partner that engaged in the activity.

Dissemination efforts by title, partner involved and exploitation intention

Year 1999

Title	Date, place and Event	Authorship	Exploitation intention
"Different perspectives on Organisational Learning: Complementary or Exclusive?"	IV CEMS Academic Conference Barcelona, Spain 24-26 March 1999	Conxita Folguera and Jordi Trullen, members of the Spanish partner team	Presentation at CEMS Conference; Proceedings of the IV Conference published in CD in July 1999
"Reviewing Assumptions on Organisational Learning"	European Doctoral Programmes Association in Management and Business Administration (EDAMBA) Chateau de Bonas, France. 24-29 July 1999	Dr. Alfons Sauquet, Project Co-ordinator, Spanish partner	Presentation at EDAMBA Summer School
"Organisational Learning: A contingency Perspective"	European Doctoral Programmes Association in Management and Business Administration (EDAMBA) Chateau de Bonas, France. 24-29 July 1999	Johann Seiwald, Alexandra Hefner Austrian Partner research members	Presentation at EDAMBA Summer School
"Corporate Learning and Rhetoric of Inquiry"	European Doctoral School on Knowledge and Management (EUDOKMA) seminar Escuela Superior de Dirección y Administració de Empresas (ESADE) Barcelona, Spain 23-25 September, 1999	Dr. Eduard Bonet, Director PhD programme in Management Sciences, ESADE	Lecture at EUDOKMA seminar
"Corporate Learning and Rhetoric of Inquiry" (updated)	Fédération Nationale de Gestion d'Entreprise (FNGE), organised at	Dr. Eduard Bonet, Director PhD programme in	Doctoral seminar

	University Aix-en-Provence Aix-en-Provence, France September 1999	Management Sciences, ESADE	
"Corporate Learning and Rhetoric of Inquiry" (updated)	EUDOKMA seminar Copenhagen Business School, Copenhagen, Denmark 25-29 October 1999	Dr. Eduard Bonet, Director PhD programme in Management Sciences, ESADE	Lecture at EUDOKMA seminar
"Organisational Learning: A Contingency Perspective"	Department of General Management and Management Control Vienna University of Economics and Business Administration Vienna, Austria 1999	Dr Sandner, K., Hefner, A. and Seiwald J. Austrian partner	Working paper

Dissemination efforts by title, partner involved and exploitation intention

Year 2000

Title	Date, place and Event	Authorship	Exploitation intention
"Some Preliminary Results of the Project "Small Business Training and Competitiveness: Building Case Studies in Different European Cultural Contexts"	First Conference on HRD Research and Practice across Europe, Kingston University, UK 15 January 2000	Conxita Folguera, Jordi Trullen- Spanish partner researchers	All three papers selected for publication
"Considerations on the Learner as a Non-Naïve Scientist: Understanding Rhetoric in the Learning Process within Organisations"		Dr. Eduard Bonet, Director PhD programme in Management Sciences, ESADE and Dr. Alfons Sauquet, Project Co-ordinator, Spanish partner	
"Analysing Knowledge Practices in Organisations"		Davide Ravasi, researcher of the Italian partner team	
Project presentation and update	EUDOKMA seminar ESADE Barcelona, Spain 3-7 April 2000	Dr. Alfons Sauquet, Project Co-ordinator, Spanish partner	Lecture at seminar
"Corporate Learning: Theories and Methods"	EUDOKMA seminar ESADE Barcelona, Spain June 2000	Dr. Alfons Sauquet, Project Co-ordinator, Spanish partner	Lecture at seminar

Project presentation	7th. International Workshop on Managerial and Organisational Cognition European Institute fr Advanced Studies in Management ESADE Barcelona, Spain 7-9 Juny 2000	Dr. Alfons Sauquet, Project Co-ordinator, Spanish partner	Presentation at Workshop
"Training in SMEs"	EDAMBA summer school Chateau de Bonas, France July 2000	Xavier Barrull, Spanish partner researcher	Presentation at seminar
"Organisational Learning in Technology Development Processes: A Comparative Case Study"	EGOS Conference Helsinki, Finland September 2000	Italian partner research team	Published paper
"Small Business Training and Competitiveness" project update presentation	EUDOKMA seminar ESADE Barcelona, Spain September 2000	Dr. Alfons Sauquet, Project Co-ordinator, Spanish partner	Lecture at seminar

Dissemination efforts by title, partner involved and exploitation intention

Year 2001

Title	Date, place and Event	Authorship	Exploitation intention
"How knowledge can travel within Organistions? The problem of Knowledge Diffusion between Organisational Subunits"	Second Conference on HRD Across Europe University of Twente Enschede, The Netherlands 26, 27 January 2001	Austrian Research Team	Paper presented
"Description of Two Learning Patterns Identified in Six Small and Medium Sized Enterprises in Catalonia"		Spanish Research Team	
Presentation of results of the project and implications for SMEs	Unternehmensentwicklung imPlus Workshop Wirtschaftsuniversität Wien (WUV) Vienna, Austria January 2001	Austrian Reserch Team	Workshop
"Selected Scenarios in Organisational Learning. Six Case Studies of Small and Medium-Sized Austrian Enterprises	WUV Wien May 2001	Sandner, K.; Hefner, A; Seiwald, J.	Book

Dissemination efforts by title, partner involved and exploitation intention

Future Efforts 2001

Planned Effort	Authorship	Exploitation intention
Publication of project's scientific cases	To be determined	Book for academic community use
Abstract submitted of paper on learning and enterpreneurial ventures based on the Italian Cases for the Babson Conference, Jönköping.	Italian Research team	Paper presented at conference. Candidacy for publishing.

Abstract submitted on learning and managerial decisions for the Annual Conference of the Strategic Management Society	Members of the Italian and Norwegian research teams	Paper presented at conference. Candidacy for publishing
Confirmation of presentation of paper "Description of Two Learning Patterns Identified in Six Small and Medium Entreprises in Catalonia" at the Human Resources Global Management Conference, Barcelona, June 2001	Spanish Research Team	Paper presentation

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Annexes

Annex 1: List of project's agreed deliverables

Publication	Type	Status
"Developing conceptual framework to describe learning processes at individual, organisational and inter-organisational level"	Project deliverable # 1	Completed, 1999
"Empirical research design for the purpose of identifying learning processes in SMEs"	Project deliverable # 2	Completed, 1999
"Literature Review"	Project deliverable # 3	Completed, 1999
"Description of the learning processes identified as a result of the analysis of data"	Project deliverable # 4	Completed, 2000
"Learning processes and Cultural Contexts"	Deliverable # 5	Completed, 2001
"Improving SMEs Competitiveness through Learning Processes"	Deliverable # 6	Completed, 2001
"Considerations for policy-makers in Training, and Education policies and SME Policies: lessons drawn from the identification of learning processes in SMEs"	Deliverable # 7	Completed, 2001
"Case Studies for Management Education Purposes: Learning Processes in SMEs"	Deliverable # 8	Completed, 2001
"Final Report of the Research Process and Results"	Deliverable # 9	Completed, 2001

Annex 2: List of other project's documentation

Publication	Type	Status
"Case Studies from the Research Project"	Group of scientific cases developed for the Project, relevant to better understand conclusions reported in deliverables 4 and 5	Completed, 2001