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DESIGN MANAGEMENT PRACTICES IN NORTHERN SPAIN SMES

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ABSTRACT:

Asturias is a small region of approximately 1 million inhabitants located in the North coast of Spain. It is a region with a very traditional industrial activity, dominated by small and medium size enterprises (SMEs). These traditional sectors have suffered different crises during last decades, having a direct and important impact on employment.

Nevertheless, there are also an increasing number of small and medium size companies that design and manufacture their own products. These companies are in sectors like furniture, consumer products, entertainment products, medical instruments, machinery and equipment,…

This type of companies was the objective of a project aimed to introduce design and design management practices on regional SMEs in a systematic and methodological way.

1. INTRODUCTION

Asturias is a small region of approximately 1 million inhabitants located in the North coast of Spain with a GDP of 2.17% of the Spanish total (as of 2005).

The industrial companies are a 6.44% of the total number of companies, and they employ 15.7% of the total workforce. Main sector within these industrial companies are (in number of companies): metallurgy and metallic products (19.33%), food, drinks and tobacco (16.48%), and other manufacturing industries (12.36%). Metallurgy and metallic products is also the sector with the main business turnover (37.67%), followed by extractive industries, energy and water (18.33%) and again food, drinks and tobacco (15.40%). About 63% of the total industrial companies (not individual industrialists) have 50 or less workers.

All these figures give the idea of a region with a very traditional industrial activity, dominated by SMEs. As we all know these traditional sectors have suffered different crises during last decades, having a direct and important impact on employment.

Design is recognized as an innovative discipline that can help companies to survive and evolve into an increasingly complicated market, where new competitors arrive constantly and where clients and users are every day more aware of their needs and want to satisfy them faster and better. Despite this fact, SMEs of Asturias have not used or performed design in a general way during last years.

Different causes can explain this fact. The most obvious is probably the lack of knowledge among these SMEs about what design is in the broad sense of the word. Many companies and managers associate design with aesthetics and formal appearance. Others identify design with engineering, either mechanical, electrical…

For those who associate design only with aesthetics, the immediate consequence is to think that it is something superfluous and hence not needed to compete and to improve the company capacities. For those that mix the concept of design and mechanical engineering, the consequence is to believe that they are already designing and using all the advantages of the discipline, while they are in fact focusing mainly in the technical aspects of the product.

To try to improve the situation that has been described, a first step was to work on a project aimed to increase the awareness and knowledge of the region SMEs with respect to design. This paper explain the procedure and results obtained and gives also some conclusions and recommendations for further actions.

2. PERFORMED ACTIVITIES

2. 1. DESIGN METHODOLOGY FOR SMES

The first activity was to perform a study on the state of the art of industrial design and design management methodologies. The main objective of this study was to define a methodology specifically focused on SMEs. As these companies often suffer from a lack of resources (human, economical, technical…) the methodology gave easy guidelines to follow, as a way of helping companies to perform and to manage design. In this way they could see the advantages of integrate such innovative activity within their strategy and day-to-day work. Finally, a process with 6 stages (plus a final recycling stage) was defined (Fernandez J.M. et al 2005) as it shown in Fig 1.

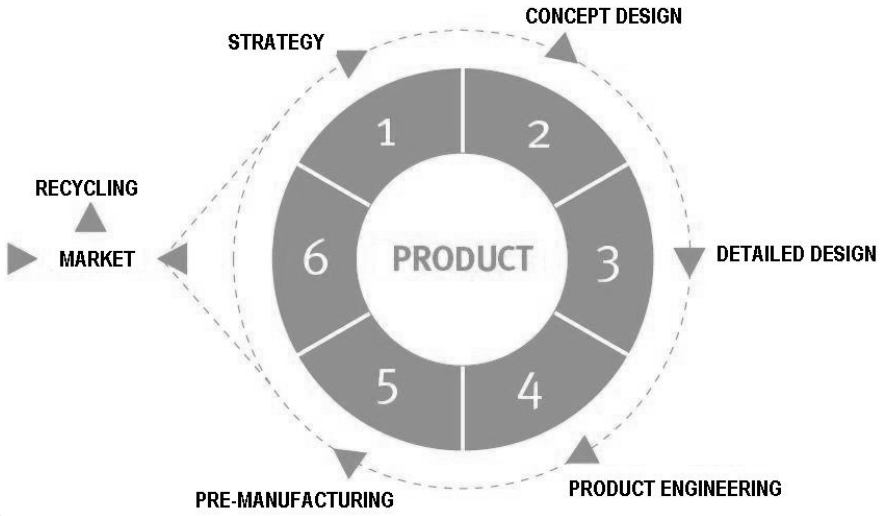

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Fig. I Stages of the industrial design process

The methodology was published and sent not only to the participant SMEs but in general to all agents involved in the promotion and improvement of design in the region (regional authorities, university, design schools,…) All mentioned stages of the design process were explained with special reference to the inputs and outputs of each one. Indication of the techniques, tools etc… that could be used on each stage were also given.

An important aspect of the methodology was the special emphasis on the importance of design management, as this aspect of business management was (and still is) specially unknown for

most SMEs. Design management was defined as the management of all kind of resources that a company uses, considering the financial and economic aspects, for planning, organizing and evaluating the needed resources for the implementation of a specific design strategy (aligned with the general business strategy) in the most effective and efficient way.

2. 1. DESIGN AUDITS

The first activity which directly involved SMEs was to audit them to know about their strengths and weaknesses, as well as their awareness, accomplishment and management of industrial design activities. A total of 28 companies participated, belonging to the following sectors (UNSD, 2002). Distribution by sectors is shown in Fig. 2. Age of these companies was between 1 and 127 years, with an average of 24. The average number of employees was 42.

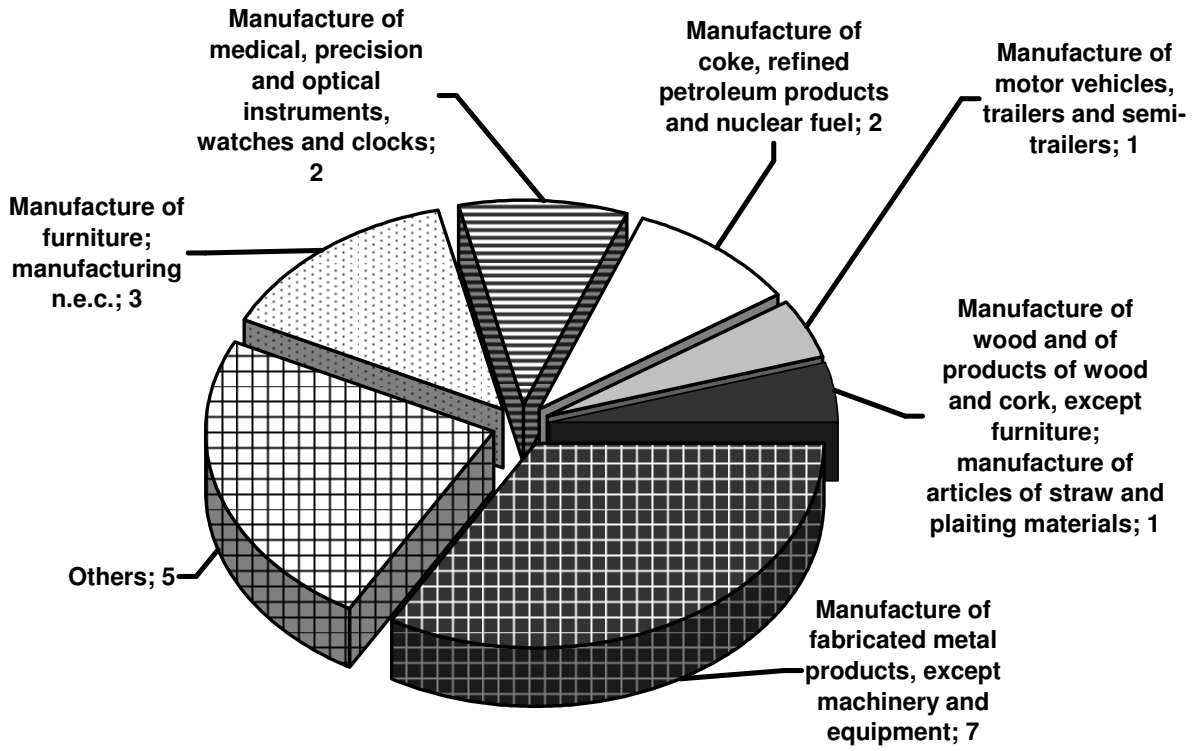

Fig. 2 Distribution of SMEs according to ISIC

The questionnaire was divided in three parts. The first one analyzed management aspects of the company. Subjects to consider were:

- Accomplishment of the above mentioned design process stages.

- Organizational structure of the company: existence, position and responsibilities of the department in charge of the design/development of products.
- Existence or not of a person in charge of design management: it was also checked if this person (if any) had more responsibilities than the ones related with design.
- Projects management capabilities of the company.

The second part of the questionnaire studied how the company planned and performed activities related to its portfolio, as for example:

- If the company studied the configuration of its present portfolio.
- If the company studied how its products were positioned in the market, in comparison with its competitors.
- If the company had a good knowledge about the costs and incomes of each product / family of products.

The last part of the questionnaire focused on how a specific design project was developed.

- Initial knowledge about the final user of the product.
- Verification of aspects related to appearance, usability, function, manufacturability.
- Verification of aspects related to packaging.

Each answer was evaluated between 1 and 3, with the following meaning:

1. The activity was not performed or it was completely unknown.
2. The activity was performed but without enough intensity.
3. The activity was adequately performed.

3. RESULTS

In Fig. 3 the number of SMEs that performed each design stage is shown. It is observed how the first stages (strategy and conceptual design) are almost not performed, while the engineering and preparation to manufacturing stages are basically well covered.

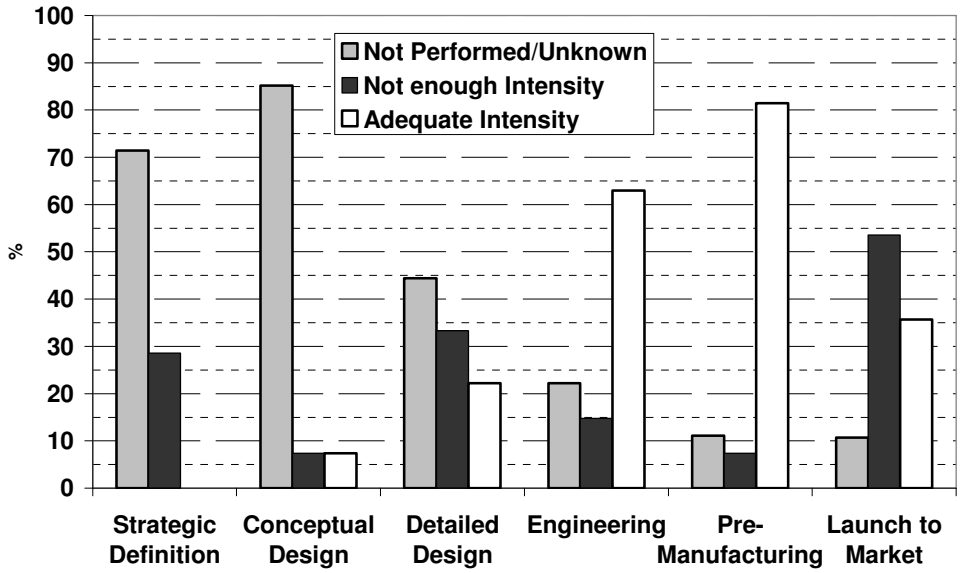

Fig. 3 Number of companies (%) performing each design stage

None of the SMEs had a person exclusively dedicated for managing all aspects related with design. In the majority of the cases these subjects were directly managed by the President of the company (71%), while in a 21% of the cases it was a Department Director the responsible. The department usually in charge of design was not a “design department” even if it could have such name, but a department mixed with others like Technical / Engineering or R&D.

With regard to the knowledge of the companies about their product portfolio, only one of them used BCG matrices as an input data to plan its activities related with design, re-design or market withdrawal. In the economic aspect, a 70% of the companies did not know the cost to produce each type of product of their present portfolio, whereas another 18% had a partial knowledge on the matter. With respect to the incomes by product better results were found, since a 21% perfectly knew the contribution of each product to their turnover, and another 25% knew it partially (Fig. 4).

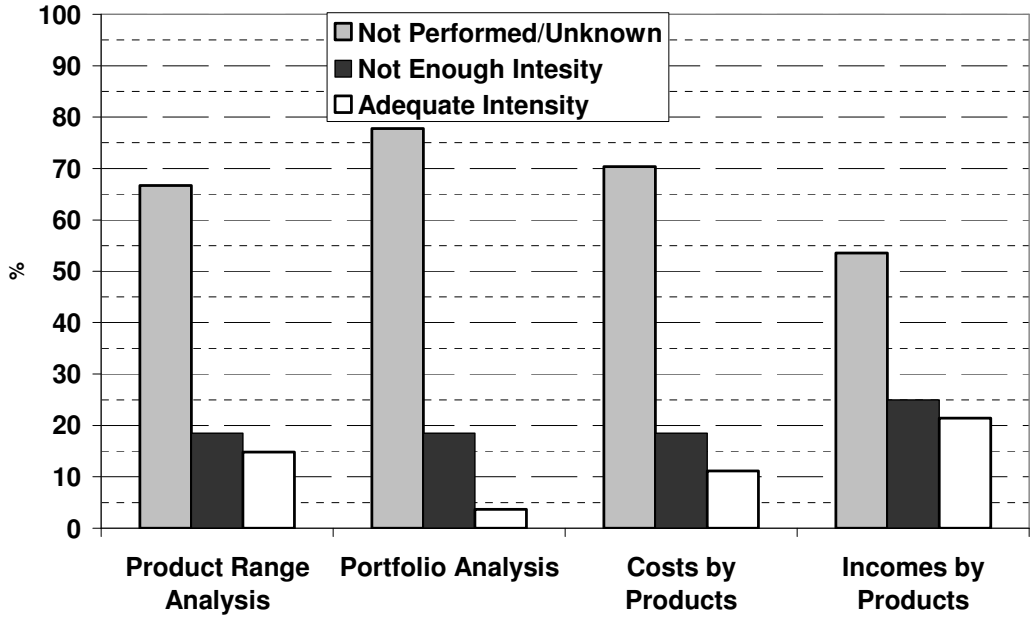

Fig. 4 Portfolio and economic analysis

When designing a particular product, only a 7% of the companies had a good knowledge of the intended final user (Fig. 5), while a 32% had no knowledge on the matter. With regard to the use of checklists for systematic verification of different aspects of the designed products and packages, only 18% of the companies had some type of manufacturability checklist, and another 8% for the appearance of product and packaging. On the other side, nearly 75% of companies did not use any type of checklist for usability or functional aspects.

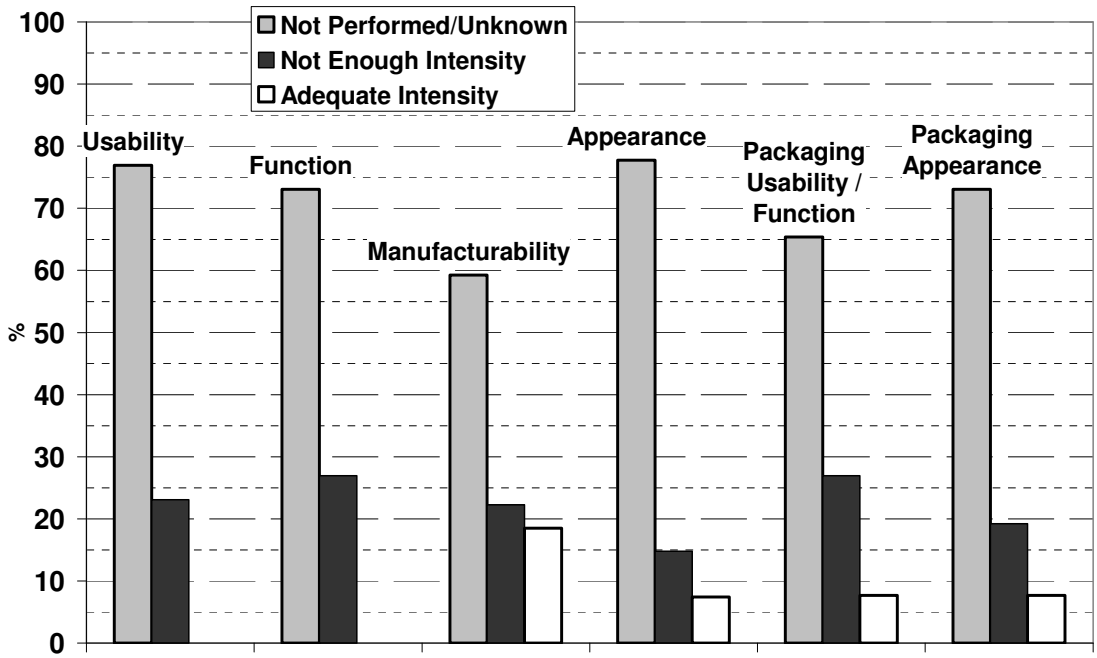

Fig. 5 Checklists used by companies

4. CONCLUSIONS

On a result of the performed study, the following conclusions can be extracted:

- Regional SMEs are not aware of the benefits that innovating through design would give them in the present and for the future.
- There is a tendency to emphasize the engineering and technical aspects of design, as a result of the industrial tradition and history of the region.
- The current organizational schemes of the SMEs don't allow them to integrate and exploit the benefits of design, at least at a strategic level.

Recommendations for future actions are:

- Continue with the dissemination of the basic aspects of design and design management, to increase awareness of SMEs.
- Emphasize the importance of a new organizational structure with a "design manager" in charge of all aspects related to design within the organization.

- Give guidelines to SMEs about how to improve the management of their resources and information as a way to support design activities and design management.

REFERENCES

Fernández, J.M. et al (2005) “Diseño Industrial: Guía Metodológica”, Fundación PRODINTEC, Gijon.

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