

# THE “IGLOO MODEL”: A PROPOSAL FOR AN ANALYSIS OF THE CONTRIBUTION OF DESIGN TO THE COMPETITIVENESS OF COMPANIES<sup>1</sup>

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## Abstract

This paper is conceptual in character and seeks to provide a model for the strategic relationship of design with companies. The paper suggests that there is a strategic triangle made up of product, process and production which, when properly led and positioned, can provide a company with above-average results. Positioning is the result of creativity and innovation; leadership may be given to one designer. The paper assumes that the designer represents one of the competences best placed to combine the different knowledge and functions within the company with a view to implementing projects for the creation of competitive advantages. A conceptual model (the Igloo Model) is proposed and several propositions are developed.

## 1. Introduction

Although companies recognize the importance of design in their business, they also recognize that there is great difficulty in establishing objective causal relationships between design and strategy, especially in terms of results. Indicators of a commercial and/or financial nature, such as growth rates, ratios related to sales, ratios related to assets, or stock market returns, have been used to prove the significant difference in performance between companies which use design effectively and those which hardly use design at all. However, these combined statements say little about what design can objectively contribute to the added performance of companies. The question conceptualized in this paper relates to how design can be applied in the most “performance oriented” manner. The paper is therefore divided into three main sections. Following the introduction (point 1), the first section (point 2) deals with the issue of what design is currently, especially regarding its relationship with companies. The second section (point 3) develops a framework of conceptual analysis for the strategic

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impact of design on companies and develops propositions regarding the main determinants of the model. The third and final section (point 4) presents a conclusion, demonstrates some limitations to the model, and suggests future research.

## **2. Design: concepts and milestones in the evolution**

According to the Dictionary-Thesaurus – “design” means plan, intention, decorative pattern, project (Collins, 1992) or, as Lucchio (2007) states, “design” is linked to the word “project” which, in Latin, means “to throw ahead”. Thus, design is the projection of something. The classic formulation considered the definition of design to be the projection of material artefacts, giving form to something with an aesthetic dimension. Aesthetics, by definition, is the study or the philosophy of beauty based on sensitivity or sensori-emotional values (Maertterer, 2007). The concept of beauty, in turn, has been an open question since early times, gaining particular importance from the Renaissance on. Traditionally the concept of beauty was associated, above all, with harmony, proportion, symmetry, order (Bauman, 2007). The concept of design was, therefore, associated with art, craft, beauty, perfection, an almost divine undertaking.

Later in the 1910s and 20s, with the pioneering spirit of the Ford Motor Company regarding mass production, and via the works of Taylor concerning scientific management, in the mid twentieth century, the approach to design did an about turn. The material artefact had to make sense, had to be useful, according to a deductive-scientific process. The concept of design thus began to also include an economic and not merely philosophical value. In this way, the relationship between design and production became closer, especially due to the proximity between design and the industrial economy, in particular, in the phase in which industries were focused on mass production. With this different type of approach, design gained relevance around the concept of industrial design.

Later, the involvement established between companies and industrial design – namely in product policies – increased significantly when the production activity within companies moved to a new paradigm. From the 1960s, 70s and 80s, with the work of Deming, Yuran, Ishikawa, Tagushi, and others, on concepts such as total quality, flexible company, quality circles, just-in-time (Kanban), continuous improvement (Kaisen), and others, but above all on aspects related to the analysis of Japanese management, the paradigm of production became process-oriented rather than product-oriented, as it had been until that time. Indeed, several studies regarding the direction given to the management of the Toyota Motor Company, from the mid 1950s, refer to a different system of production which some authors even call the “Toyota Manufacturing System” (Bohemia, 2000), but which became more known in the literature as lean manufacturing. This new system sought to take advantage of the best of both worlds: the flexibility of handmade production and the low cost of mass production and, as mentioned, deflected the focus from the product to the process.

From what has been said, it will be seen that in the system of lean manufacturing the designers worked less on their own and more in multidisciplinary and multifunctional teams. In other words, design can be seen as a mobilising force, since it may have to take on the role of choreographing different types of knowledge (Stebing and Burden, 2007) or even leading a project or team (Leinss, 2007). Previously, design

had cohabited, above all, with aesthetics, creativity and industrial and production engineering. From this point on, design considered not only the product, technology and production, but also the people in marketing and sales, impacting on consumption. This more developed perspective reduces the individual character of the role of design and creativity still further, giving it a more ethical and social mark. What was called industrial design is, now, an activity which can involve consultancy, definition of products and development of concepts (Hyvonen, 2006), a way of thinking and acting (Leinss, 2007) to solve concrete problems. In this sense, the role of the designer goes beyond creativity, since it is not limited to producing new and appropriate ideas, but should also be able to implement those ideas well within organizations, so that, as Amabile (2006) concluded, design thus comes closer to the concept of innovation. There will always be a gap between the imagined idea and the idea when drawn or materialized, and design can fill this gap by giving material expression to the idea. As Fratelli (1969) sums up, factors related to design can be grouped into 3 different spheres: a) the morphological sphere, with a perception of the phenomenon; b) the technical-scientific sphere, with links between capacities of imagination and technical tools; and c) the social sphere, with factors of an economic, ergonomic and psychological order.

From all that has been referred to above, but, especially, due to the mobilising force that design can bring to a given project, as a solution for problems and a key factor for innovation, design thus contributes to enhancing its strategic value, both at the operational level and at the strategic level of the business.

### **3. The strategic role of design**

Despite being focused on the human being, design is an intellectual process which gives form and appearance to ideas, a bridge between the intangible and the tangible and, in this sense, as Ciprian and Degouzon (2007) explain, it reinforces its strategic role, insofar as it is one of the best ways of producing tangible solutions for strategic questions. Design can also be considered strategic because it provides for the possibility of products, processes and solutions which combine skills, know-how and other resources with a view to presenting new creative forms of value for the market. From the services we avail ourselves of and the products we buy and use, to the spaces we live and work in and the experiences we benefit from, design plays a role in everything we do, combining ideas with technology, innovation and the real needs of users. As Palmer (2007) states, the evolution of design is, in part, due to the increase in the demand from consumers for more personalized, desirable, efficient and sustainable products and services. Demonstrating the intellectual commitment to issues which affect our lives and the future, design is projected not only as a strategic resource of businesses for today, but also as their strategic vision for tomorrow. Ideas and prototypes are developed, sometimes based on real world demand, other times predicting potential future needs, in collaboration with industry, with cultural and political institutions, with other companies already established, with start-ups (Leinss, 2007) and others.

On the other hand, an analysis of the value chain of companies allows us to reach the conclusion that, as a rule, design is an activity without any particular organizational focus. As it operates at the boundaries and together with other sectors of

the company, it has no natural space within the organizational structure. However, as Walton (2000) mentions, the management of design is as important an area in an organization as product development, marketing, R&D, production, communications, etc. Hence, besides the aesthetics, the technological factors, the production and the market, design should also be understood in terms of the decision-making process, insofar as, as highlighted by Owens (2000), the study of cases suggests that organizations with few hierarchical levels structured around self-managed management teams are often organizations which privilege design, with this having a significant implication in the decision-making process. That is, the apparent disadvantage of design having no particular focus favours the appearance of opportunities at the level of the vision and management of multidisciplinary and multifunctional teams. As Palmer (2007) has detected, successful companies seek to promote creativity in all aspects and parts of the organization and do not only see design or R&D as specific creative areas. Effectively, design and designers can assume an important role in terms of leadership or entrepreneurship for the implementation of an idea, a product, a new service, a new system of relating to clients and/or suppliers, in the application of new software, etc., which may bring advantages to the company and added value to the clients. As Ciprian and Degouzon (2007) state, the designer should be involved at the highest levels, in the conception and definition of the project. He is no longer a simple producer, but has become a true motivating force for the project, especially due to his capacity to give form and life to the project and to communicate efficiently in a common language. Indeed, in order to implement a creative idea and a decision, self-confidence, determination and courage are required, and success demands the capacity to persist with one's own causes and believe in them even when all of the surrounding situation does not yet support them (Himanen, 2006). In this sense, the entrepreneurship of the designer and his potential capacity to lead projects should serve to reduce the gap which always exists between routine and change, between the old and the new. As Jevnaker (2000) claims, behind all of the most successful companies, the individuals act as persistent promoters of design, supplying the leadership necessary to support, connect and "glue" the competence in design to the general wisdom of the company and to the nuclear competences that exist within it.

Furthermore, companies have adopted more committed social attitudes, in the sense of greater social responsibility and the increasing return of gains to civil society. Within this scope, the growing strategic relevance of design and its potential capacity to manage change has contributed to increasing still further the notoriety and reach of design within companies and organizations. It is in this sense, therefore, that the evolution of the concept of design in terms of sustainability should also be valued: designers can create new systems which fulfil needs and solve real problems with maximum benefit jointly for consumers, producers and the natural surroundings. As Tischner (2006) states, sustainable design is focused not only on production, products and consumption, in general, but also on the sufficiency of consumption. That being the case, the strategic leverage that design can have may also serve to produce new forms of creation of value for the community, taking into consideration economic, social and environmental concerns. Impacting on issues such as sustainability, design has the potential to provide a strong response to the creation of desirable alternatives to existing products and services, promoting changes in the patterns of use of materials, of production, of consumption, in the assembly and dismantling of products and in recycling. The growing concern, at all levels of society, with issues of environmental conservation highlights a different posture and vision of the consumer/user with regard

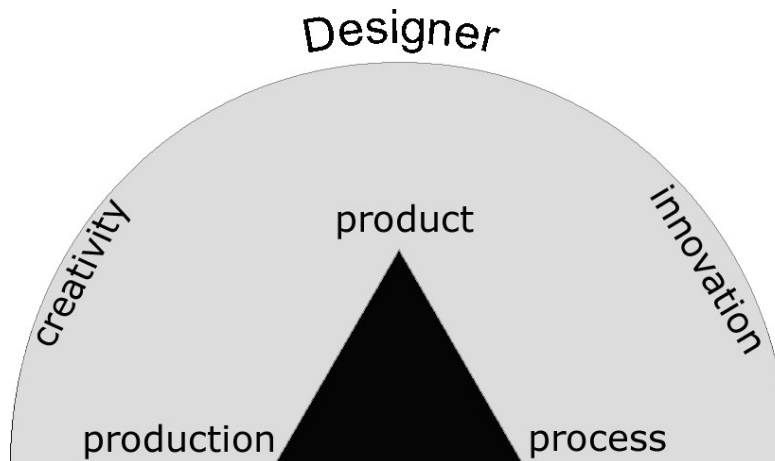
to design. According to Manzini (2006), the consumer will increasingly look to design not only to solve problems, but to solve problems in a way which will allow people to live as they wish.

#### 4. The “Igloo Model” and support propositions

Following a review of the literature on the concept of design, it can be seen that design has evolved in the direction of the designer having a holistic vision of the company and of the relationship with the clients, so that it makes no sense to return to the existence of a simple function “design”. It is increasingly an activity with characteristics which involve skills and functions. For this reason, the way to value and measure the results of design should be based on the attributing of leadership activities to designers, within or outside the company, especially leadership of projects which involve various skills. This is the true function of design i.e. the conquering of positions of leadership, essentially, of projects, within the company, with direct reporting to top management. A model is therefore proposed for design which is strategically relevant for the company and which contributes to the sustained achievement of results which are above the industry average, following incremental strategic actions of management. The aims of this model, known as the “Igloo Model”, are: a) to engage organizations in continuous improvement and refreshing; b) to provide organizations with more constructive ways of organizing creativity, materializing innovation and creating value; c) to allow the strategic impact of design to be better understood and monitored within companies.

This being the case, and as can be seen in Figure 1, this conceptualization considers the presence of three components which are decisive for companies’ strategic use of design. These are: the designer, as leader of a project; creativity and innovation as the beginning and end of the intervention and integration of design; and what we might call the strategic triangle of design in a company: the coherent convergence between product, production and process.

Figure 1: “Igloo Model”



Given this description, we will now present the following propositions related to the model.

**4.1. Proposition 1:** The main internal drivers within a company for the implementation of strategic design are: 1) the product, process and production, which will be called the strategic triangle, 2) creativity and innovation as a “backdrop” against which all the rest is developed; 3) the designer as leader of a project and teams for the creation and development of new ideas; and, lastly, 4) top management.

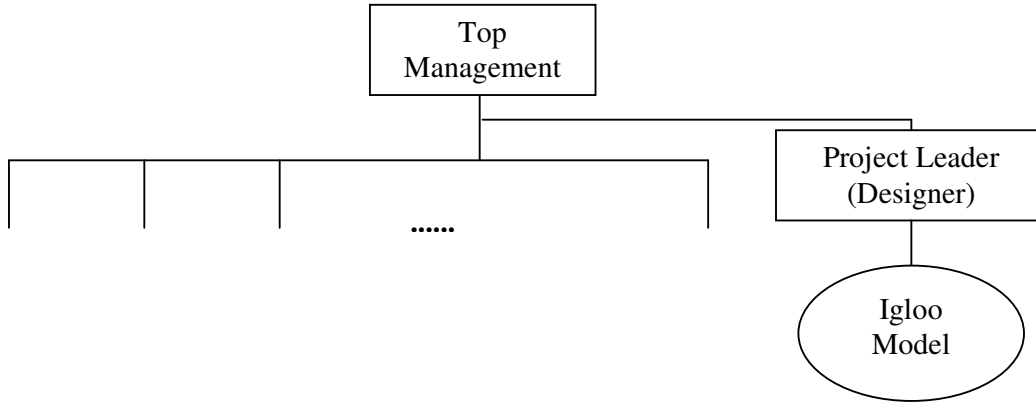
The designer can be a key element in the project for three main reasons. The first is that this is one of the professions with a closer understanding of the motivations and presuppositions of the various technical skills encompassed within a general process of innovation. The second is that the designer has a natural methodological vocation for transforming ideas into something tangible and admired by consumers. The third reason is, as Manzini (2006) states, that design is a creative activity that establishes and develops the qualities of the many facets of an object, service, process, system or solution throughout its whole lifecycle.

Creativity and innovation are two sides of the same coin used by design. Creativity is increasingly interaction. Creating something alone is genius, but in strategic terms for business, creativity cannot only be narcissistic personal production, but should also involve social, ethical (Hinamen, 2006) and business sensitivity. More can be learnt from discussion with different people, even in one’s own field of action within a speciality. As previously stated, the materialization of creativity requires self-confidence, determination and courage, since visionary ideas are often associated with a kind of “creative madness” (Hinamen, 2006), which the company should not restrict, but which should also not lose sight of the desired result. Design and the designer are especially well positioned to accept creative madness and integrate it within the company in order to obtain the desired result. Creativity should therefore be worked on, accumulated and monitored throughout the organization in a transversal logic between departments, functions, people and skills.

The strategic triangle has a central position in a common project related to the development of new ideas. The presence in the same project of product, production and process means combining the elements of attributes, stylishness, aesthetics, ergonomics, functionality, etc. – associated with the product – with the elements related to efficiency and prototyping (innovation) – associated with correct management of the production – and, lastly, with the elements interlinking the production with all the other activities of the company – associated with the process. That is, the presence of this strategic triangle is vital to ensuring the effectiveness of the creative activity, in terms of cost and desired final results. As mentioned, leadership of a project to develop new ideas should be capable of being entrusted to designers since they have a special vocation for these multifunctional and multidisciplinary functions. Nevertheless, these project teams should be set up in organizational terms under the aegis of the top management. This is not only so the designer can more easily incorporate leadership functions, but also because the project teams should be made up of people in the company who have specific functions. The setting up of these project teams for the development of new

ideas should be based on their being complementary to the normal work of each of these people in terms of creativity, providing incentives and motivation. This being so, the organizational structure of a company should include the project team for the development of new ideas within its organogram in line with Figure 2.

**Figure 2:** Organizational Positioning of the IGLOO Model



In short, the “IGLOO model” is a permanent search platform for creativity and innovation, by means of design, which covers the whole organization, which includes the strategic vision of the company and which takes the form of a projects team for the development of new ideas under the direct auspices of top management and led by a designer. In this sense, it includes the main internal drivers of strategic design, as can be seen in Table 1.

**Table 1:** Internal Drivers for Strategic Design

<u>Product</u>	<ul style="list-style-type: none"> <li>• Veryzer (1999)</li> <li>• NZIER (2003)</li> <li>• Hertenstein and Platt (2000)</li> </ul>
<u>Process</u>	<ul style="list-style-type: none"> <li>• Designium (2005)</li> </ul>
<u>Production</u>	<ul style="list-style-type: none"> <li>• Bohemia (2006)</li> </ul>
<u>General Management</u> (Including the Top Management and the Designers)	<ul style="list-style-type: none"> <li>• SIDF (2004)</li> <li>• Designium (2005)</li> <li>• Jevnaker (2000)</li> <li>• DC (2004)</li> <li>• Manzini (2006)</li> <li>• Tischner (2006)</li> <li>• Maffei and Villari (2006)</li> </ul>

**4.2. Proposition 2a:** The strategic relevance of product design in the company must go beyond aesthetics and functionality.

The relationship between design and product takes us back to the debate between design and aesthetics. Aesthetics is in no way overshadowed by strategic design. It is simply that it cannot be considered as an isolated element, but as an integral part of a design process or solution. Aesthetics and design are naturally linked because the physical form of a product contains aesthetic aspects such as shape, colour, texture, etc. However, what strategic design requires is a different approach to aesthetics. In fact, research began to be carried out regarding aesthetic consumption (Holbrock and Zirli, 1985), introducing new research themes, such as: the relationship of design with individual differences, with learning and context (Veryzer, 2000); how factors such as sex, age, attitudes and personality can affect people's reactions to the design of products (Holbrock and Schindler, 1994); the study of the impact of macro factors such as culture, social influences and fashion (Soloman, 1988; Walendorf, 1980); and, also, how to differentiate and position products in the minds of consumers (Kotler and Keller, 2006).

It is this more general context related to aesthetics that design has to accommodate. According to Loken and Ward (1990) and Veryzer (2000), more typical things tend to be more appreciated, since as a rule they are seen as having more attributes, being more highly valued by purchasers, or they are more familiar and well-known. However, there are atypical responses on the part of consumers, for example the demand for variety (Holbrock and Hirschman, 1982), or the demand for difference and unusual design (Loken and Ward, 1990) in each product that is acquired. Therefore, design should involve principles that include perception, but also, as Scott (1994) states, it should be based on an ethical, aesthetic and symbolic vocabulary and other attributes that exist in society. In this context, Veryzer (1999, 2000) systematizes by stating that design should provide consumers with consistency, by highlighting in the products the operative properties (functional, durable, useful, etc.), comprehensive properties (with identity, surprising, etc.), constructive properties (simple, flexible, cheap, etc.) and decidable properties (attractive, valuable, etc.).

Despite everything that has been written on design, the product continues to be a central element in the issue of design and the designer. Furthermore, one of the main elements in the analysis of the product is its cost. The cost of the product is generally an important strategic weapon and the influence of product design on the final cost is normally considered to be high, from 75 to 90% (Shields and Young, 1991). Indeed, the competition in the market requires actions and competitive responses from companies to their competitors, and the development and launch of new products is an important competitive weapon that may be used by companies in the competitive rivalry. However, Hertenstein and Platt (2000), concluding that there are strong possibilities that the development project may "die" in virtue of the cost exceeding that desired, emphasize the obvious concern of the companies' management, and intrinsically of the designers, to make trade-offs between cost and time, that is, between the cost of developing the product, with regard to a previously defined and desired cost, and the time needed to design or redesign the product. For this reason, the product may not be considered as an isolated area of work in design, because, for example, in the course of the development of the product there are four sequential phases (Hertenstein and Platt, 2000) with pauses between them to assess whether to pass to the next phase depending on the cost of the product achieved:

Phase 1) Development of the design + market research + visualization;



Phase 2) Technical development + production design (appropriate tools) + product prototype;

Phase 3) Production and distribution + quality tests + marketing campaign;

Phase 4) Post-production audit + customer satisfaction audit.

Therefore, in this relationship between management and the product development teams, the cost and time variables play an important role in the competitive capacity of the companies, namely, in their capacity to, in useful time and without excessive financial implications, manage to provide competitive responses to the other players in the market.

**4.3. Proposition 2b:** The process of design within a company can and should contribute to the incorporation and implementation throughout the whole of the organization – departments, functions, people and skills – of the desires of the clients.

The process of strategic development of design should include the way in which purchasers think and behave, but also, as Rutter (1994) states, the needs of all those who come into contact with the product, including those who are involved in the production, sales, logistics and after-sales service. The NZIER (2003)<sup>2</sup> reaches the same conclusion and suggests an assessment of the desires of the clients and the transformation of these desires into products and services.

It may seem that in terms of process design is practically all used up in the development of the product, although, in this process, it forces the convergence of a series of the activities of the company, such as marketing, production, innovation and research and development, for example. However, another of the contributions of design in terms of process is the greater proximity between design and performance of the companies. Design is an area with distinct and interrelated elements so that the more variables that are introduced into the strategic design equation, the closer we get to the truth and the better we understand the performance of the company. For example, the SIDF (2004)<sup>3</sup> regards companies as being more mature when they see design as an important aspect in the business, integrating it strategically throughout the whole organization. In doing this, the company makes design a permanent strategic weapon that produces products and/or solutions which competitors are incapable of or are not interested in competing with. That is, design should never abandon the business until a “hard-to-copy” concept has been found (Thompson, 1994). In this sense, as the Design Council (DC) (2004) concluded, companies which emphasize the permanent – both wide-ranging and long-term – presence of design will be better rewarded in terms of performance.

**4.4. Proposition 2c:** Companies which strategically incorporate design should adopt, in the management of production, design tools that promote the greater flexibility and agility of companies.

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<sup>2</sup> *New Zealand Institute of Economic Research.*

<sup>3</sup> *Swedish Industrial Design Foundation.*

Design may have a very interesting role in many activities within the company, but production is the function where something surprising is always expected of design. In reality, design may contribute to the production of goods, by means of processes already in existence with changes: in the layout, in the sequencing of tasks, in the design of the factory, etc. Yet the system of production may itself be a source of motivation for design and innovation. With regard to this, Bohemia (2000) detected that lean manufacturing systems<sup>4</sup> have been an excellent opportunity for designers, since the lean manufacturers employ more industrial designers, involve them more and give them more responsibility.

Lean manufacturing is a technique that allows companies to be more flexible, namely, being quicker in their response to changes in the market due to its own turbulence or changes in patterns of consumption. The increasing entry into the market of new companies from an ever greater number of countries, especially those that compete with very low prices, requires from companies that are less competitive in terms of price, emphasis on factors of competitiveness which are more intangible from the start, and compatible with a more flexible system of production, quicker in its responses and more creative. Lean manufacturing may respond better to these challenges than handmade production and mass production.

Modern times and projections for the future have improved lean manufacturing to even more flexible systems of production, which are even closer to the clients. This is the case, for example of Agile Manufacturing and Mass Customisation; in both, the basis is related to the development of design techniques associated with the management and production technology techniques implemented with the lean manufacturing systems, as is the case of the design tools referred to in Table 2.

**Table 2:** Techniques of Management of Production and Design Tools

Rapid Prototyping	Computer Aided Design	Failure Modes and Effect Analysis
Design for Manufacture	Computer Aided Manufacturing	Tagushi Methods
Design for Assembly	CAD/CAM	
Environmental Design	Computer Aided Engineering	
Design for Serviceability	Quality Function Development	

Source: Bohemia (2000) (adap.)

**4.5. Proposition 3:** Intangible resources, especially creativity and innovation, are permanent determinants of the process of strategic management of design for the creation of value for clients and competitive advantage for the company, and should influence all the activities of the company.

The strategies at the level of business within the companies consist of a range of integrated and coordinated actions that the company uses to obtain competitive advantage via the application of nuclear competences in specific markets of products (Dess et alli., 1995). From here the importance of two concepts can be highlighted which are decisive for the business strategies of the companies: the concept of competitive advantage and the concept of nuclear competences. Design, since it

<sup>4</sup> As opposed to the so-called mass production.

transforms ideas into practical, creative and commercial realities (Flemming and Lynch, 2006), is, therefore, a bridge to the creation of value and competitive advantage, especially through creativity and innovation. Or rather, with creativity ideas are generated, with design “face” and shape is given to the ideas, and with innovation the “faces” and shapes are placed in new and different contexts (Flemming and Lynch, 2005). This being the case, innovation through design may allow companies to obtain competitive advantage, at least up until the moment of imitation by competitors. Hence, the company needs to create value for its clients and manages to do so by the coherent and sustained incorporation of resources, skills and capacities which, if they are rare, difficult to copy, or even irreplaceable, are identified as “nuclear competences”. Design may be one of these competences. As Porter (1996) states, the most powerful source of creation of nuclear competences is the existence of intangible resources. As can be seen in Table 3, intangible resources are strongly associated with creativity, the product, innovation, perception, or rather, attributes that have been incorporated through design.

**Table 3:** Intangible Resources with Important Strategic Potential

<b>Intangible Resources</b>	
Human Resources	<ul style="list-style-type: none"> <li>- Knowledge</li> <li>- Trust</li> <li>- Management capacities</li> <li>- Organizational routines</li> </ul>
Resources through innovation	<ul style="list-style-type: none"> <li>- Ideas</li> <li>- Scientific capacities</li> <li>- Capacities to innovate</li> </ul>
Resources associated with reputation	<ul style="list-style-type: none"> <li>- Reputation with clients</li> <li>- Brand</li> <li>- Perceptions about the product in terms of quality, durability, reliability, etc.</li> <li>- Reputation with suppliers</li> <li>- Diverse mutually beneficial, efficient and support relationships and interactions.</li> </ul>

Source: Adapted from Hall (1992)

The internal context of a company is increasingly important due to the relevance of the intangible resources, but also because traditional factors such as labour costs, access to financial resources and to raw materials, and protectionism, amongst others, continue to be capable of being sources of competitive advantage, although to a lesser degree (Subramani and Venkataraman, 2003), resulting from the existence of global markets which also enable competitors to have access to these sources via international strategies. Thus, the need to identify new or additional sources of competitive advantage highlights the importance of understanding the resources, capacities and skills already in existence within the companies. Besides the tangible resources it is important to focus the analysis on the intangible resources. In reality, although the production assets, for example, are tangible resources, many of the processes for using these assets are intangible (Hitt *et al.*, 2007), for example, the unique processes of manufacture, the processes of quality control, the technological developments that are made, etc., and these are very often generators of competitive advantage.

From the analysis regarding intangible resources we can also draw conclusions concerning the importance of the company’s relationship with people, companies and/or bodies external to the company, as is the case of clients. The experience a consumer has when he or she acquires a product is important so that the design can understand the client, focusing, for example, on the psychology of the consumer, but also on the

interaction and the processes between the purchaser and the seller, and on the desirable prior knowledge of learning how the product will affect the life, the “vanity” and the narcissism of each consumer. Design should, therefore, invest in the way the client perceives the company, the product, the service, considering all the attributes that might be taken into account by the client in his or her decision to buy, included product-related, service-related and image-related attributes. In this sense, the design process should not do anything, which remains forever, and should always work on evolution.

**4.6. Proposition 4:** Designers represent the competences best placed within the company to act as a mobilising force for projects for the development, monitoring and implementation of new ideas.

The responses of companies to appeals from the market are many and touch on different areas of knowledge. Therefore it is necessary for somebody to know how to coordinate all of this knowledge of different specialities and different strategic involvement and make the intangible into something tangible. Regarding this aspect, some authors believe that designers are potential partners for managing groups and teams, namely product development teams. Indeed, Walton (2000), in a survey carried out in Australia, concluded that designers are widely used in the development of new ideas for products and are generally seen as potential project leaders. In this field, Jevnaker (2000) establishes a direct relationship between a series of aims of design and a series of leadership activities respectively required, as can be seen in Table 4.

**Table 4:** Relationship between Design Capacities and Leadership Activities

Capacity associated with Design	Leadership action involved
Actual capacity of design	<ul style="list-style-type: none"> <li>• Development of initiatives</li> </ul>
Capacity of combining different disciplines	<ul style="list-style-type: none"> <li>• Creating interaction between the design resources of the company and its nuclear competences</li> </ul>
Learning capacity of design	<ul style="list-style-type: none"> <li>• Initiating design experiences with key stakeholders</li> <li>• Reporting history regarding design</li> </ul>
Innovation capacity	<ul style="list-style-type: none"> <li>• Adopting new ideas and knowledge</li> <li>• Developing advantages through creativity</li> </ul>
Capacity to use design strategically	<ul style="list-style-type: none"> <li>• Anchoring the development of design in the company's business strategies</li> <li>• Implementing the strategic expansion of design</li> </ul>
Capacity to protect the advantage established through design	<ul style="list-style-type: none"> <li>• Protecting the new designs via patents, licences or other means</li> <li>• Sustaining the design capacities via alliances and R&amp;D agreements.</li> </ul>

Source: Adapted from Jevnaker (2000)

Undoubtedly, the capacities that a designer needs to have to lead a team and/or project are unmistakable, as shown by Table 4. Nevertheless, Dumas and Mintzberg (1989) consider a close link between managers and designers or design consultants to be a decisive factor for the fluency of creative ideas and for efforts to pursue this. This is not only for strategic reasons, but also because the bold movements of initiative can

come from both sides. With regard to the near future, in the opinion of Manzini (2006), the designer may also take on a leadership role, especially at the level of social changes concerning “sustainable design”.

Assessment of the impacts of design is an eternal challenge, even though the importance of design in the performance of the company is habitually recognized. As a Finnish study has shown (Designium, 2005), it is very difficult to separate the impact of design from the impact of other disciplines or areas of the company on the success of the business. Because design acts as a filter of know-how associated with many disciplines it is also very difficult for clients to attribute success to the contributions of design. In other words, the borderline between design and strategy is in that which goes beyond the corporate image and the appearance and ergonomics of the products. Apparently, only going beyond this line can the objective assessment of managers and clients strategically measure the impacts of design. As the Finnish study also states: “design alone cannot assure success, rather performance is dependent on excellence and seamless co-operation across all functions” (Designium, 2005, p.69). To sum up, it appears that in order to discover the strategic impacts of design the relationship of interdependence between functions and disciplines must be monitored. In this sense, and besides the awards attributable to products, usually for style, by professional organizations, it can be understood that the most important focus for measuring the strategic impacts of design are the projects, especially those led by designers and, also, the appointment of designers to occupy the respective functions of leadership. In the same way that the financial, commercial or other functions receive glory for their activity – exactly because they are distinct and distinguishable functions within the company – so too should design be valued, although in an integrating, multidisciplinary and multifunctional logic, with creativity and innovation as a backdrop.

## **5. Conclusion**

As has been shown, the “Igloo Model” highlights the main internal drivers for the strategic relationship between design and companies, namely the product, the process and the production, the designer and, obviously, top management. The presence of these drivers in the model is not therefore totally innovative insofar as other authors have already suggested this. What would be a serious error is their absence. What is innovative is, above all, bringing together this strategic triangle under one “umbrella” of intangibility associated with creativity and innovation that may emerge in any functional or geographic area of the company. Also innovative is the attributing of a strategic mark to this triangle and to each of its components in the sense of, thus, involving it in the whole organization and the business strategies of the company. Lastly, what is innovative is giving the designer an important role in the leadership of projects and teams for the creation and implementation of new ideas, reporting directly to top management. This model of intervention and valuing of the design function of the company is not proposed solely with the specific objective of facilitating the measuring of the impact of design. Although this is one of its potential uses, this model is principally an appropriately and strategically relevant way of truly including the design function in the structure of companies.

The potential of this model should be assessed, naturally, in the light of the limitations of this paper itself.

Firstly, this model was developed independently of the surroundings and specificities of the industries in which each company, in particular, operates. Future research into the application of the model should consider the implications that the different industries may have on the strategic triangle referred to as product, production and process, and also the way in which creativity and innovation are linked to this triangle.

Secondly, the model only establishes the desirable relationship between leadership under the charge of a designer and projects for the development of new ideas. The way in which these relationships should be arranged is not dealt with in depth. Future research could explore, in particular, the way relationships between the leader of a project and the people involved in it are developed.

Thirdly, the model describes the context of a company and its respective competitive challenges in a static manner. All the determinants associated with the model are highly dynamic variables within any given organization, changing according to the time, the context and the competitive rivalry. As a consequence, future research should make the analysis more dynamic, studying the application of the model at different times, from an evolutionary and longitudinal perspective.

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