

The strategic use of sustainable design: A case study on a large corporation

O uso estratégico do design sustentável: um estudo de caso em uma grande corporação

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Abstract

The present article addresses some key constraints to enable a more strategic role of design within corporations, with a focus on the large opportunities set by the demands of sustainability. In order to illustrate such implications the author reports a case study developed within a Base-Of-Pyramid project of a large corporation where the challenge was the design of a Do-It-Yourself (DIY) shelf for low income houses. The project requirements involved the possibility of manufacturing, selling, distributing, assembling and maintaining the product within the low-income community. The project was aligned with the corporation's strategic goals of expanding their socially inclusive businesses, thus enabling design to act strategically for the implementation of sustainable ideals.

Key words: sustainability, strategic design, Base-of-Pyramid, furniture, social-inclusive business.

Resumo

O presente artigo trata de limitações chave para a obtenção de um papel mais estratégico do design em corporações, com foco nas amplas oportunidades descortinadas pelas demandas da sustentabilidade. Para ilustrar as implicações dessas oportunidades, o autor relata um estudo de caso desenvolvido em um projeto Base-da-Pirâmide dentro de uma grande empresa onde o desafio foi o design de um armário "faça-você-mesmo" para habitações de interesse social. Os requisitos do projeto incluíam a possibilidade de manufaturar, vender, distribuir, montar e manter o produto dentro da própria comunidade de baixa renda. Esse projeto estava alinhado com os objetivos estratégicos da empresa, a qual buscava expandir seu portfólio de negócios inclusivos, possibilitando uma atuação mais estratégica do design na busca pelos ideais da sustentabilidade.

Palavras-chave: sustentabilidade, design estratégico, Base-da-Pirâmide, mobiliário, negócios inclusivos.

Introduction

Conventionally the translation of a company's needs into actions follows three levels of decision-making: strategic, tactical and operational. However, in practice, the boundaries between strategic, tactic and operational decisions are not clearly defined when the issue is sustainability. Strategic decision-making gives more emphasis to "wished events" while tactical decision-making emphasises "planned events" and, finally, the operational decision-making focuses on "current events." The paragraphs below present some examples of typical information handled at each of these decision levels:

- Strategic (wished events): market penetration, consolidation, liquidation, market development,

diversification, internal development, acquisition, joint venture (Porter, 1998; Bowman and Asch, 1987), new product-service systems (Manzini and Vezzoli, 2002), new opportunities, new products, new management systems, new manufacturing processes, new production channels;

- Tactical (planned events): rearrangement of schedules in order to get a better balance of resources; preparation of training courses to introduce new technology;
- Operational (current events): the processing times for a prototype, labour absenteeism, reduction of machine breakdowns, material shortages, layout changes.

A very important difference between strategic decisions and other type of decisions is their clear search

for competitive advantage. In the case of sustainability, a good strategy could set the development path along which the key organisation capabilities will evolve to achieve sustainable business objectives. In this context, the current paper analyses key issues involving the integration of sustainability within a large corporation, through a strategic design perspective.

Challenges for embedding strategic thinking on design decisions

With the globalisation and opening of market barriers, customers are becoming more discerning in terms of price, quality, cost, delivery and the availability of customised features. After all, nowadays customers have the power and ability to choose the best product or service that their money can buy from anywhere in the world. In this context, competitiveness rests more and more on the anticipation of market trends and in the quick response to the ever-changing customer needs and demands. Fortunately, in more demanding markets the impacts on the environment and the business social ethics gradually become a customer criteria for choosing a given product or service. These, and other changes in the competitive environment in the last decades, have brought significant changes in the strategic role of design within the organization and political arena (Tukker *et al.*, 2008).

One example of implications of a strategic decision is the option for "local outsourcing" as opposite to "global outsourcing". Normally outsourcing is used when a firm has neither a critical strategic need nor special capabilities to produce or supply a particular product or service. Companies using this strategy can lower their long-term capital investment and leverage their key internal competencies significantly. Therefore, outsourcing can provide greater flexibility, especially in the purchase of rapidly developing new technologies, fashion goods, or the myriad of components for complex systems (Quinn and Hilmer, 1994). From a sustainable point of view local outsourcing would be the primary goal since it implies the reduction of resources used in transport. At the same time, according to Tukker *et al.* (2008), such strategy may inflict changes on the product design specifications and, also, on the need for long term investments to train and develop of local suppliers on those areas that do not have technological or managerial capability.

Hence, strategic and holistic thinking among design personnel is a key feature to enable its effective contribution to competitive advantage. However, it is still often the case that operational decisions and actions within design do not agree with the strategic needs of the company or, worse, do not bring a critical and alternative point of view for the current strategy. Even more common is the total absence of a process for strategic management on the first place.

Galbraith (1986) argued that organisations are "packages of mosaics" in which all the pieces must fit together. In line with this, coherence of decision-making between design and other organisational functions is a fundamental requirement for implementing sustainable practices and, at the same time, achieving a company's strategic objectives. Internal fights within a company, to

satisfy fragmented objectives, are counterproductive and only lead to sub-optimisation and waste of resources.

Designers risk being affected by "cognitive nearsightedness" if they do not get involved in strategic planning. Short-term decisions may sacrifice a long-term strategic advantage. Bowman and Asch (1987) define "cognitive nearsightedness" as the tendency to pay more attention to physically observable, quantitative and immediate factors, at the expense of intangible dimensions of a problem that are remote in time and space. In other words, production managers may place too much emphasis on direct operational decisions and give little attention to their implications on the business strategy.

In this context, design may opt for one of the following strategic postures with respect to the business needs (adapted from Lewis and Slack, 2002) and, by consequence, to the demands of a more sustainable society:

- Internally neutral: design that is simply reactive to the internal business demands. The function has few links with the rest of the business and makes a minimal contribution to increase the company's competitiveness;
- Externally neutral: design that is able to meet the standards imposed by the major competitors. It responds to problems encountered in the rest of the business, but never establishes its own long term strategy;
- Internally supportive: design that is tailored to the specific business strategy. In this case, the design function generates many new ideas and has a long term strategy, but it may not be well tuned to other functions needs or expectations;
- Externally supportive: design that aims to be as good as any other competitor in the world. In this case design supports both the current business priorities, and other organisational functions, thus, creating new opportunities for increased competitiveness.

Unfortunately, design is often found playing only an internally neutral role in many organisations. Design often solely follows the marketing demands without actually presenting strategies to change the market on the long term. That is particularly important in the case of sustainability since its demands changes in the consumer lifestyles and even on the entire business process.

One of the main barriers for moving the design towards a more strategic role is the lack of a leadership that understands and accepts the idea that it is absolutely critical developing strategic thinking within the design function. Without such attitude designers might suffer the same factors presented by Hill (1992) in the case of production managers:

- The design manager's view of themselves: strategic implications of the design decisions are not fully understood even by the production managers themselves;
- The company view of the design manager's role: business strategic decisions are formulated assuming the design manager has few strategic contributions to give;

- Design managers are late into the corporate debate: very often production managers have their first contact with the content of the strategic decisions only after they have already been defined;
- The “can't say no” syndrome to orders: a result from the fear of losing face or being accused of incompetence in relation to other functions within the company;
- Lack of language: design managers rarely understand the language and practice at the corporate level because of their operational background (the lack of strategic management in the curriculum of undergraduate courses is also often a serious gap in higher education in this field);
- Functional goals and measures: the link between design goals and actions in the business performance is not always clearly made.

Nowadays, designers must have a clear strategic orientation in order to allow them to understand the link and impact of their own actions on the strategic needs of the company and, very importantly, to act as channels for driving the company towards sustainability. That understanding is particularly more complex when the issue is related to sustainability since the multitude of layers and factors to achieve a truly sustainable approach for business is enormous. Hence, within this context, this paper attempts to improve our understanding, within the context of large company, about the implications of a strategic design with a focus on the environmental and social dimension of sustainability.

Research method

The data collection for this research was carried out within a project aiming at the low income market. The phase reported on this paper was carried out within a community on the suburbs of Curitiba and it focused on the development of do-it-yourself furniture that could be used to divide living spaces within the houses. Most low-income houses in Brazil already use furniture to divide spaces but, at the time of this research project, there was no product in the Brazilian market that had been actually designed to this purpose.

In order to achieve this goal the project involved UFPR (Paraná Federal University), the client (through COHAB – Curitiba's City Council Housing Developer), the material manufacturer (MASISA), the furniture maker (PlacasCentro), a Furniture Retail Company (M&M Móveis) and Aliança Empreendedora (an NGO that provides support for cooperatives of craftsman). The initial phase involved a literature review on the issue of Do-It-Yourself (DIY) and, subsequently, it was carried out a mini-survey within ten houses with low-income community, followed by a case study on furniture design. Curitiba's City Council Housing Agency (COHAB-CT) has provided the researchers with access to the community. Next section presents the partial results of this phase and discusses some implications and opportunities of Do-It-Yourself (DIY) solutions for the low income market in Brazil.

Results and analysis

Masisa is a vertically integrated forestry company with pine and eucalyptus plantations in Chile, Argentina, Brazil and Venezuela. This company produces wood products for a variety of uses: wood boards, solid wood products such as doors and mouldings, as well as timber, for which it maintains industrial operations in Chile, Argentina, Brazil, Venezuela, Mexico and the United States.

The company publishes an environmental and social report every two years, so as to inform about the progresses regarding the financial resources management, operating results of the environmental sphere and management of the social aspects. In the economic sphere, Terranova (conglomerate that owns Masisa) reached sales amounting to US\$296 million in 2002 and US\$482 million in 2003. The operating results were US\$29 million in 2002 and US\$22 million in 2003.

In the social sphere it is important to mention that the company implemented the Corporate Management for Social and Environmental Responsibility stands. During 2003, the World Pact initiative favoured by Kofi Annan was subscribed by Masisa. On the other hand, consulting formal processes were initiated with the public concerned about the operations in Chile, Brazil and Venezuela. In Chile, agreements with the native communities claiming their land's property back were achieved. The OHSAS 18001 certification was granted for the operations in Chile, Brazil, Venezuela and the U.S.A.

In the environmental aspect, Terranova's Chile forest division received the 2002 Environmental National Award for the category "environmental management of the manufacturing sector" granted by the Chilean government through the National Environmental Commission (CONAMA). Terranova in Brazil gained the Forest Stewardship Council certification, certifying its safety chain in 2003. The same was achieved by Terranova Venezuela. The ISO 14001 certification was achieved by the Brazilian and American industry and by the Venezuelan forest area.

The Base-Of-Pyramid projects within Masisa come under its vision of being recognized as a leading industrial group in Latin America, operating in a framework of ethics, eco - efficiency, and social responsibility. The pilot study reported here was set within Masisa's goals of developing pilot “socially inclusive business” projects with low-income segments of the market. The company established the goal that 12% of total sales in 2010 would come from the base of the pyramid and socially inclusive businesses.

To this end, Masisa has created partnerships with more than 300 of its retail outlets (PlacasCentro) licensed in Latin America so as to train carpenters in producing improved furniture that meets the needs of the poor. Also, in order to create a new sales force for these products it is contracting and training women from low-income segments of society. It is also helping carpenters, with the collaboration of other civil society organizations, to become micro-entrepreneurs and thus participate in the formal economy (Grupo Nueva, 2003).

The aim of this particular project was the development of furniture that works as a partition wall. Most low-income houses in Brazil already use furniture to divide spaces but there is no product in the market

that has been actually designed to this purpose. In order to achieve this goal the project involved UFPR (Paraná Federal University), the client (through COHAB – Curitiba’s City Council Housing Developer), the material manufacturer (MASISA), the furniture maker (PlacasCentro), a Furniture Retail Company (M&M Móveis) and Aliança Empreendedora (an NGO that provides support for cooperatives of craftsman).

Based on a briefing carried out with the Sambaqui Community it was identified that this product should allow the user him/herself to assemble the furniture (DIY) and define the position of the partition-wall/furniture. The chosen design solution for this project is based on a “ziz-zag” concept, where the furniture is assembled like a Lego, and enables its usage on both faces in various configurations, such as illustrated on Figure 2.

This product main competitor is the traditional masonry which costs an average 59,80 R\$/m² which is the target cost. The estimates so far have shown that the product can achieve this target cost and with the benefit of providing a higher perceived value than traditional masonry and, also, with an increase on the available area in the house (see Figure 3).

The product has been designed in a way that even small local will be able to produce it, thus providing income generation close to where the low-income families actually live. All wood-based material specified for this furniture follows FSC standards and is based on Masisa’s range of products. The product allows the use of accessories to increase its functions and appearance, some of them designed in a way that the community could be involved on the production process as well.

The product allows the use of accessories to increase its functions and appearance. The current phase of the project includes the analysis of local cooperatives of craftsman in order to include their work as alternative strategies to provide textures and accessories for the product, thus stimulating the local economy. These two channels of product development together with the already existing range of color/textures possibilities offered by MASISA enables a more customized product for each family.

Conclusion

A critical analysis of the conventional process for designing, producing and distributing furniture on the



Figure 1. The use of furniture to divide spaces on a low-income house.

low-income market has shown that, in order to achieve its BOP goals, Masisa had to enable more equity among all stakeholders throughout the supply chain. That in itself is an opportunity for strategic innovation through sustainable design. The conventional business process generates income and employment quite distant from the areas where low-income people live. Therefore, one of the strategies to implement a socially inclusive business process would require bringing the employment and revenue generation closer to the low-income community that actually buys the furniture.

The product presented on this paper has been designed in a way that even local producers, using widely available wood processing technologies, would be able to produce and maintain it, thus providing income generation closer to where the low-income families actually live. Furthermore, the scenario for producing and distributing this furniture has considered an ongoing BOP project within Masisa that attempts to train local people as furniture salesman (door-to-door), emulating other similar marketing approaches such as the one adopted by Avon for its sales force. The current phase of the project includes the analysis of local cooperatives of craftsman in order to include their work as alternative strategies to provide textures, alternative materials and accessories for the product, thus stimulating the local economy.

This case study shows that the focus on corporate demands and, at the same time, the ethical need for enabling better social and environmental performance, presents itself more as an opportunity for designers with a strategic view on sustainability rather than a burden. However, the case study also showed that an effective business approach towards sustainability demands a wider set of competencies from the designer. Indeed, the field study has demonstrated that dealing with the complexities of listening to local communities needs and, at the same time, designing products that can involve the user on the business process requires designers with better strategic and communication skills and, also, a longer lead time on the design process.

Sustainable design is often presented through its environmental or social implications for society and that

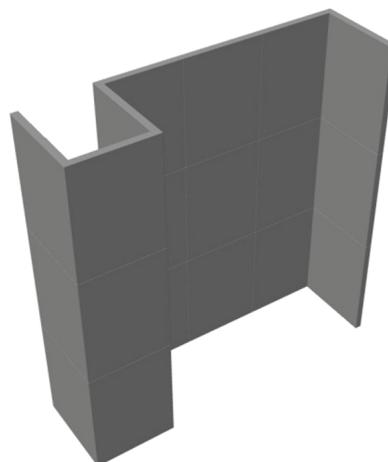


Figure 2. Product enabling different layouts.

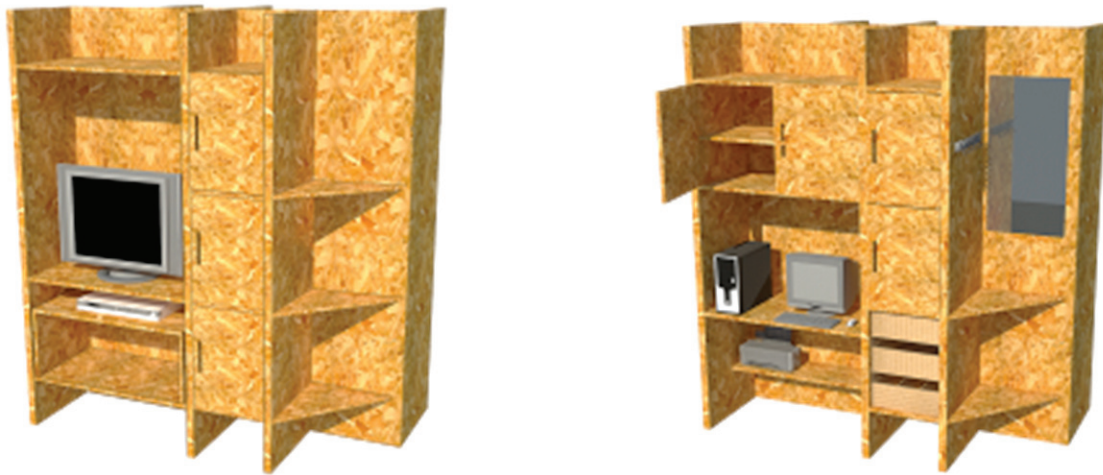


Figure 3. One of possible combinations of the product platform for furniture/partition wall for low-income house layout.

focus overlooks the need of translating “sustainability” into competitiveness in the case of corporations. Sustainable business approaches compete hand-to-hand with non-sustainable business approaches and, therefore, designers need to address the issue from a strategic perspective if it is to achieve long term results.

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