

# **DESIGN AS INTERDISCIPLINARY KNOWLEDGE AND PRACTICE - LESSONS FROM THE INTERNATIONAL DESIGN BUSINESS MANAGEMENT PROGRAMME**

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## **ABSTRACT**

The business environment in many fields is a complex entity to master. This calls for interdisciplinary co-operation. Latest research and national policies show the increasing importance of design and design management in the success of companies operating on international and global markets. To include design as a competitive element in strategic and operational decision-making sets great challenges for companies, academia, and different professions. Interdisciplinary efforts are needed in education. The paper describes an example of such an effort, the International Design Business Management (IDBM) Programme. In addition to describing the main contribution and challenges of the Programme, the aim is to provide a generic description illustrating the strategic role of design within the global business environment from a Finnish perspective.

*Keywords: Interdisciplinary education, design management*

## **1 INTRODUCTION - THE IDBM PROGRAMME**

The International Design Business Management (IDBM) Programme is a joint teaching and research programme of three leading Finnish universities: the Helsinki School of Economics and Business Administration (HSEBA), the University of Art and Design Helsinki (UIAH) and the Helsinki University of Technology (HUT). Approximately 30 students (10 from each university) who are on the final stages of their master level studies are selected to the Programme each year. The purpose of the Programme is to bring together experts in different fields within the concept of design business management and to train skilled professionals for key roles in the field of international design business. The Programme underscores the importance of design as a competitive factor among other business functions, such as technology and marketing.

The core of the IDBM Programme consists of projects that are commissioned by companies and last one academic year. Within these projects, multidisciplinary teams of three to five students address real-life problems of the company concerned. The assignments from companies have concerned various topics, such as product concept design, mapping of use environments for future products, international market surveys, and creation of companies' design management policies. Over 85 industry projects have been conducted within IDBM in co-operation with companies from various fields (see table 1). These projects have enabled solid knowledge foundation with respect to the key issues of the relationship between design and business.

Table 1. IDBM industry projects categorized by operation areas and project themes.

<b>Area of operations</b>	<b>number</b>	<b>% of all</b>
machine technology, industrial products/processes	12	21%
mobile services / communications	7	13%
consumer products	6	11%
public organisations / services	4	7%
raw materials	4	7%
furniture	3	5%
clothing & textiles	3	5%
research & development	2	4%
design services	1	2%
retailing	1	2%
not named	13	-
total	56	100%
<b>Project themes</b>	<b>number</b>	<b>% of all</b>
product concept	17	30%
service concept	5	9%
market study	4	7%
multimedia	4	7%
corporate identity	3	5%
new material concept	3	5%
future (activity) scenario	3	5%
e-commerce	3	5%
industrial education/training	3	5%
user interface	2	4%
environmental design / architecture	2	4%
working processes / networks	2	4%
other	5	9%
total	56	100%

Arising from the needs of industry, the programme gives future marketers, engineering experts, and designers an opportunity to learn and practice various important interpersonal skills through multifaceted projects and study courses. The intention is to teach students to fully utilize their own potential as members of interdisciplinary teams.

In addition to the graduate courses and industry projects, the IDBM Programme has generated numerous studies that approach various aspects of design business management. Many of them have examined the strategic role of design as a competitive factor in international context. Others have concentrated on defining and analysing product concepts and product development of the future. Studies have resulted in theoretical conceptualisations, illustrating case analyses, and practical recommendations.

The IDBM approach is characterised by a holistic mindset towards design in its various forms: products, processes, organizational issues, and the overall strategic use of design. The central idea is to consider design as a core competence of a company. Nevertheless,

this does not exclude the attention on basic problems and specific tasks that companies face in their daily operations.

## **2 CHALLENGES OF THE GLOBAL DESIGN BUSINESS**

The environment within which companies operate is becoming increasingly complex. Regarding new product development and, in fact, companies' existence, there appears a vast array of tangible and intangible aspects that should be mastered in order to successfully compete in demanding markets. In various businesses, market and technology cycles are constantly shortening, and increasing need exists for more accurate products – in terms of responding to the aspirations of a specific segment, as well as more challenging quality and ecological requirements – and proper interpretations of possible future directions. To enable mastering complex entities, new management paradigms have emerged. An example is platform approach that concerns a holistic view into the management of product portfolios [1].

Within this puzzle, the role of design is crucial, concerning both the process itself and its various outcomes, is crucial. A company may gain remarkable competitive advantage through deep and holistic understanding of design.

The challenges tend to be quite well understood in many large businesses, also in Finland. However, small and medium-sized firms do not often use the potential advantages of specific and holistic approach towards design issues. This situation is evidently due to harsh realities and nature of smaller-scale businesses, but often also to the lack of proper information and open-mindedness [2] [3]. In Finland, a number of governmental actions have been conducted and heavily financed projects have started in recent years to foster both design-related research and practice, particularly focused on the specific problems of small and medium-sized enterprises. Nevertheless, coherent understanding of subsequent actions is still missing. It has been difficult to come down from political debate onto the grass root level.

## **3 STRATEGIC DESIGN AS CORE COMPETENCE**

Design should not be regarded in disconnection with the generic business strategy of the company. The role of design is to support the business strategy. Design, concerning the physical product, corporate identity, or other tangible dimensions of communication, is the ultimate manifestation of the company's business strategy. Strategic approach to design may, for instance, form an organic part of brand identity building [4], or guide the fundamentals of product development and innovations.

Customer orientation, the selection of proper strategies, the position in the value chain, and the management of the distribution channel are examples of issues that should be considered in relation to design decisions. It is important especially for small companies to notice that right strategic decisions can even compensate the lack of internal resources.

It should also be noted that it is crucial to set clear long-term strategic objectives and to follow them coherently on a long-term basis. In addition, strategic decisions should be justified in relation to the internal capabilities and external realities that the company is facing. Besides being dependent on the business and product category in question, strategic options are different for a company that aims to become a global player than for a company with specific local markets in mind.

Before being well prepared to face the challenges of global business environment, companies should first understand the contribution of design to their core competence. Traditionally, design has been most strongly related to certain businesses, such as

furniture and clothing, and specific consumer products. In our understanding, the applicability of design is wider. The IDBM approach is characterised by a holistic mindset towards design in its various forms - products, processes, organizational issues, and overall strategic use. The central idea is to consider design as a core competence of a company. Nevertheless, this does not exclude the attention on basic problems and specific tasks that companies face in their daily operations.

What does the notion of core competence actually mean? In other words, what does it mean to excel in design in a way that it becomes the corner stone of business in the company, or society at large? From a certain perspective, design excellence may be considered in aesthetic terms, predominantly concerning the characteristics of physical products. When talking about, for instance, Italy as a leading design nation, the aesthetic aspect is clearly stressed. However, in a more holistic sense, and specifically in the context of IDBM, the focus is merely on the design process and its effective management. However, this does not, of course, exclude the aesthetic dimension. Most of all, the holistic approach necessitates proper co-operation between the parties in product development. This will be enabled when the importance of design is first recognized and broadly understood throughout the entire company.

Despite the possibilities that the design-orientated approach might offer, it is difficult to formulate universal models that could be applied to every situation. The approach to design is subject to various case-sensitive issues. It is central to find a proper match between the design approach of a company and the existing and emerging demands and design trends of the market. Thus, in order to transform design – whether seen as a process, product, organisation, or something else – into a core competence, a company should assess both its internal capabilities and knowledge of external factors. From the perspective of design, internal coherence in forming design understanding and holistic business strategy is essential. This alone is rarely enough. Design approach must respond to various external issues such as current and future trends in customer needs and perceptions, technological evolution, and societal changes.

#### 4 ADVANTAGES OF THE HOLISTIC DESIGN APPROACH

The importance of design-orientated thinking is illustrated in the model of Hollins and Pugh [5]. They have studied the new product design process of selected companies and found out that the most important decisions are made in the concept design phase (see figure 1). On this phase, the decisive attributes of the product are created.

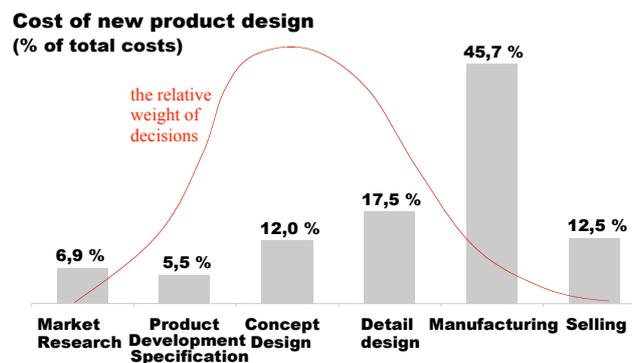


Figure 1. Costs of design and the relative weight of decisions. Adapted from the model by Hollins and Pugh in Piirainen (2001)

In addition to this process view, design is a key business factor affecting a great variety of product attributes and business processes. It can have a substantial impact on the competitiveness of a product and a company through the perceived product value. Design acts as a mediator of product and company image and helps a company or a brand to gain greater recognition (e.g. through design awards).

The qualitative advantages that a deep commitment to design brings are evident, but it is difficult to assess the impacts of design in financial terms, since the relationship between design and business performance is not straightforward [5]. The list of possible measures includes competitive strength, growth, stability, efficiency, turnover, depth of skills, age of assets, and long term return on investments. While clear and concrete measures are missing, all the advantages are not widely realised. This applies especially to many small companies that tend to emphasize short-term gains. Companies must deal with the realities of small size business environment, shortage of required resources, and confusing concepts around design [3]. Moreover, mutual understanding between various parties, such as companies and external consultants, is often difficult to achieve, and the specific realities related to design-driven business are not known.

## **5 IDENTIFYING SUCCESS FACTORS**

If the financial measures are difficult to formulate, are there then some common characteristics that successful (design) companies have? The advantages of design will emerge through various strategic decisions. On the basis of extensive research among Finnish design companies, Salimäki draws the success model of a Finnish design company. According to his research results, there are six major issues that contribute to success [6]:

1. Setting goals at international level;
2. Significant innovation in technology or marketing;
3. Internal efficiency (positioning, pricing, value chain position, supplier relationships, competitive technology, quality policies, flexibility, logistics, high-quality information systems, continuous development, staff participation);
4. Market-driven approach (involvement of top management, effective communication in marketing channel, channel structure, client relations/partnerships, co-operation with competitors, logical segmentation);
5. Professional management and leadership (design management, market research, dealing with reclamation, competitor monitoring, systematic product development process, control of product portfolio, effective planning process, experts in the board of management, experienced top management, professional human resource management, strong financial resources/solid relations to financing institutions); and
6. Distinctive design.

Later studies have shown that design was used as a tool for adaptation and differentiation of the product offering in the internationalisation process. Further, the studies show that design has to be combined with other competitive elements. Design alone is not sufficient to ensure competitiveness [7].

## **6 INTERDISCIPLINARY STRENGTH AND CHALLENGES**

The holistic approach of the IDBM Programme brings together complementary capabilities of different professionals who are involved in the product development process. There exist shared responsibilities and disciplinary knowledge, and proper co-

ordination of parties' roles is consequently needed. For example, designers have two remarkable roles in business. Firstly, they are trained professionals that hold complementing skills to engineers and business graduates. Secondly, designers play the role of communication mediators within the product development team. This role stems from the designers' ability to transform abstract issues into visual form. Such a skill is extremely important when the other members of the team come from different cultural and lingual backgrounds. As professionals, designers represent the end-user in the development projects. Designers are trained to observe and deeply understand functional and mental needs of the users.

Leiviskä has researched the interdisciplinary teamwork within the IDBM Programme [8]. According to her, disciplinary and interdisciplinary approaches do not exclude each other. Knowledge, awareness, and skills of one's own field are actually prerequisites for interdisciplinary work. Within the teamwork, strong disciplinary identity is needed in order to identify and define the competencies of teamwork parties.

Strong disciplinary identities also create challenges for IDBM type of co-operation. It is sometimes difficult to get students that have learned different working practices and cultures to work effectively together. Essentially, interdisciplinary work already in the study phase provides students with a good practice that may prove valuable during their later careers. Students learn to appreciate competencies and capabilities of other fields.

The multidisciplinary approach relates to another major challenge that has been identified during the first 10 years of the IDBM Programme. It has sometimes been difficult to show companies the advantages of the interdisciplinary effort. It is easier to get companies convinced of the specific potential of business, engineering, and design students separately, but a more holistic approach combining these capabilities remains peculiar for many companies. This is the case particularly with companies that have not traditionally invested in design activities.

Furthermore, companies do not usually know what is the exact result that they want from the project. This, of course, reflects the realities in which companies are operating, particularly with respect to innovation creation and new product development, on which many IDBM projects are focused. Such a situation can sometimes be unpleasant for students who have used to obtain clearly defined assignments during their studies. It is a great challenge for students, as well as for the supervisors and company representatives of the projects, to channel the project into a direction that provides the best possible results. There have been many successful projects in which the teamwork has flourished and projects with much friction. In both cases, however, the learning experience has probably been rewarding with respect to handling such co-operation in the business world.

Despite the many challenges that have not been entirely resolved, it might be useful to broaden the IDBM scheme. The co-operation of marketing, engineering and design parties may yet be interdisciplinary activity, but it is not truly multidisciplinary. It might be argued that the participation of these three instances in the product development is natural and nothing unusual. Even if this triadic setting would be tuned to be as effective and efficient as possible, it could lack something essential. It is still a setting that operates according to the ethos of economic life. Is this enough? In the contemporary world that is utterly saturated with products, services, and all kind of stimulation, it is extremely difficult to stand out from the crowd. This applies especially to small companies that have to face the power of big competitors. To create more meaningful products that could hit the customers' sweet spot would require even deeper thinking of design and its fundamental characteristics. This could be achieved in practice by adding

relevant disciplines, especially from the fields of social sciences and humanities, into the design process. In many large corporations this is already reality.

## 7 CONCLUDING REMARKS

Encouraged by the positive results of the IDBM Programme, it may be suggested that a proper approach to above issues starts through co-operation of different stakeholders of design. Design is fundamentally a multidisciplinary issue and requires thus multifaceted knowledge, with regards both to research and practice. IDBM-type of education research that touches several issues of design and business is a good example of an effort to create knowledge through interdisciplinary knowledge.

As the IDBM experience shows, a common understanding between different parties is crucial. The importance of common vision and goals cannot be exaggerated. It is created, first of all, by working together from the very initial phase of product development. This mode of thinking includes understanding the business context and realities, but also strengths and limitations of other professions. Such a mindset may be learned already during the studies, after which new professionals are better equipped to face the challenges of the global business environment.

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