

INDUSTRY, COMPETITIVENESS AND DESIGN. THE HISTORICAL DEVELOPMENT OF FINNISH IN-HOUSE DESIGN FUNCTIONS

Anna Valtonen, University of Art and Design Helsinki, Finland

Abstract: Industrial designers have been hired within Finnish companies since the sixties. The importance of design for the competitiveness is now a well understood matter, but developing a competitive design organisation takes time and effort. The development path of in-house design organisations has not been researched very extensively, nor has the changing role of the designer and the design function during this development.

The empiria for this paper was collected through interviews with designers representing most of the larger Finnish in-house design organisations. In-house design organisations in three companies, Nokia, Metso and Suunto, are studied in more detail. There are similarities in the development pattern of the in-house design functions in these companies. First an individual designer has been hired for a specific project, later the designer aims to co-ordinate several design projects at once, and eventually design is identified as its own function. Finally design becomes a vital area of competence for the company. The paper also shows how this research correlates to three previous studies; British Design Council (2004): *The Impact of Design on Stock Market Performance. An Analysis of UK Quoted Companies 1994-2003*, SVID (2004): *Swedish companies on design: Attitudes, profitability and design maturity in Swedish companies.* and Eljas Perheentupa (1989): *Teollinen muotoilu liikkeenjohtamisessa*. UIAH B16, Helsinki.

Introduction and method

The first industrial designers in Finland graduated in 1965 [1-2]. As a professionally defined practice industrial design is fairly new. In this paper, the historical development of in-house design organisations in three companies; the mobile phone company Nokia, Metso Paper, a global supplier of process industry machinery and systems and Suunto, producing sports instruments and compasses, is studied in more detail [3]. The three companies differ in the length of their design history, their organisational setup, and their products. Still, these organisations have many things in common. All have acknowledged the significance of the design function, and the in-house design group has become reasonably large. Most importantly these companies use design as a part of the innovation process. The empiria for this paper was collected through in-depth interviews with the individual Finnish designers [4]. In order to validate this material, several sources of the company histories were also used. [5-14]

Nokia – a large in-house design organisation

The first educated industrial designers in Nokia were hired in the early seventies for Salora, then part of the Nokia group. At this point most of the design work was for televisions; the design department also did the design for several other brands as a sub-contractor, such as Blaupunkt, Granada TV, and Thorn.

Between the years 1973 to 1981 the design department transferred from the mechanics department to report to the research and development management, and finally reporting directly to the C.E.O. Gradually these designers left the company to form their own design agencies. Between 1981 and 1983 there were no designers employed directly at Mobira, as the company mobile phone unit was then called, as all design was subcontracted. The two companies that were

mostly used, Ergonomiadesign and Destem, were both formed and run by former designers of Salora and Mobira.

In 1983, a student of industrial design was again hired to the mechanical department of Mobira, initially only for the summer. The designers in the subcontracting agencies acted as tutors for his work. The designer was thus first hired only for one specific project, but moved on to the next and was eventually hired permanently. For ten years he was the only industrial designer working for Nokia Mobile Phones, in the mechanical design department.

In 1992, the designer moved to the marketing department in the headquarters in Espoo and the next designer was hired to replace him in the mechanics department in Salo. Soon after designers were also recruited outside Finland. A new leader for the design functions at Nokia was hired from a U.S. subcontractor in 1995. The aim was to concentrate not only on the products already in production but also on future products. At first, the new design organisation included a few people in the U.K. and Finland, and several designers were hired to a new design site in Calabasas, California.

Since then the corporate, as well as its design organisation, has undergone several organisational changes. In 2005, Nokia design organisation has two parts: a design line organisation, heading the design functions and providing all business units with design research, concepting and design delivery, and design management teams in each business unit. There are more than ten large design sites around the world and designers from more than twenty nationalities. The Finnish design sites are in Helsinki, Salo, Oulu and Tampere, of which the first two have more than thirty designers each, and the two latter somewhat less.

Metso Paper – design of capital goods

The design activities at Metso have a very similar start than in Nokia. In the mid-seventies, two industrial designers were employed by the printing machine department of Wärtsilä. However, in the end of the seventies the printing machine functions were sold and the designers disappeared from the company. One of the designers was re-hired in 1983, this time to the cutter department. The designer was then working in different product development projects, as one member of the product development team. The same pioneering designer that was originally hired in the seventies, has been part of the design team ever since 1983 and is currently heading the design functions in Metso Paper. The first designer spent almost a decade as the only designer. The second designer was hired in 1988, and the third in the end of the millennium. Design was identified as its own function in 2002, the same year the first design strategy was written. In 2003, the design function consisted of five designers. [11-13]



FIGURE 1. The Opticoncept –project at Metso, 2000, a project that was of vital importance to the design function.

Suunto – a novel design organisation

In 1987 Suunto launched its first diving computer. A student of industrial design suggested Suunto management that he, as his final thesis for the University of Art&Design Helsinki, could do the design. This designer later founded a design agency that Suunto has used for design subcontracting ever since.

In January 1997 Suunto had a position open for a mechanical designer. An industrial designer was hired to the position and he managed to convince Suunto management to include industrial design tasks in his job description. The first in-house industrial design position within Suunto was thus created, as part of mechanical design. The internal industrial designer acted as an interface between the (internal) mechanical design and the (then entirely external) industrial design. Design was managed on a project basis, every project manager employed whatever design resources they found most appropriate for the project. At the time, Suunto was an acknowledged company on two markets: in mechanical compasses and in diving computers. A lot of research was done within the company to find technologies that would enable wrist-sized computers to be used in other forms of sports than diving.

In late 2000 the wristop-computer business had proven profitable and the product creation group at Suunto had grown rapidly. The designers convinced Suunto management of the importance of a design group. In January 2001, this group was officially appointed. It had three areas of responsibility on the corporate level; Product design, User-interface design and Brand design. The design group was positioned as part of product development. The design group has since then grown with two additional designers for product design and one person for user-interface design, and in 2004 consisted of a total of six people. Besides their own specified roles they all take part in the concepting and roadmapping activities.



FIGURE 2. The Suunto X-Lander 2002. The first Suunto product where the project manager was an industrial designer.

Previous studies

The British Design Council (BDC) has identified four types of users of design and design management [15]. The Swedish Industrial Design Foundation (SVID) uses a similar concept, that of the Design Ladder [16]. Eljas Perheentupa has in 1989 in Finland suggested similar steps of design development [17].

BDC (2004)	SVID (2004)	Eljas Perheentupa (1989)
1. no design usage	1. non-design	1. design by non-designers
2. design used on project level	2. design as styling	2. a designer is hired and he performs design on project basis
		3. the individual designer designs the entire product portfolio
3. design used on strategic level	3. design as a process	4. organisational issues within industrial design and design management arise
4. design as the driver for innovation	4. design as innovation	

How designers are employed in a company clearly relates to the level of design usage in the company. However, these studies merely suggest a division of all companies into categories, as if the companies would be on a particular, almost static level. There are thus quite a few companies that use design, but only a small fraction of them use design as what is referred to “as innovation” or as “a driver for innovation”. In contrast to this, in the examples of this study the stages appear to be sequential; the companies that achieve the higher tiers have previously passed through the other stages. In the beginning, when designers are only used for individual projects the design function can be very easy to rationalise away in the time of economic low [18-20]. If design has become a part of the companies strategic thinking it is more difficult to remove the function without great loss. In the more developed cases, the design functionalities have become a fundamental part of the companies’ way of thinking, and equally part of its future potential. The design functions have thus become both widespread in the company and invaluable. [21]

Similarities in the development paths

Based on the three examples, and other interviews, it can be seen that many Finnish in-house design organisations seem to share a similar development pattern. One of the interviewees describes this in his own organisation:

“In principle it [the design department] developed in such a way that in the beginning it was a unit under the mechanics department, from which it then moved to become a department under the manager of product development. After a various amount of changes it was then finally made a department directly under the C.E.O.” [22]

The development of the in-house design organisation has started by one individual designer being hired to do a specific project, often to the department of mechanical design. When one product development process was completed it was followed by an other but very seldom did the designer work on many products at once. Design is used on a project level, the second level of maturity in the BDC –study. There can be more than one designer that works in the company in this way, but they remain isolated in their own organisations or departments rather than form a design community.

The designer frequently sees himself as a part of the product development team in general rather than specifically a designer. Often this designer has been faced with the task of describing what an industrial designer actually does, and how the corporate could benefit of such a function. In some cases the designer has convinced the corporate that he can do the same tasks as the others in the mechanical design group, but then *in addition*, he also has other qualities.

“They were actually looking for a mechanical engineer but I had done all sorts of general design, probably also designed some mechanical constructions. I was then able to sell in myself as a designer/engineer.” [23]

The designer’s task then becomes larger. Often the designer is still not hired by the whole corporation but by one specific unit of it. At this point, the designer does very down-to earth design tasks. An example of this is given by one of the designers describing his working situation in 1985:

” My job was as hands-on as ever possible. And in the sense that I got to do everything from start to finish, in all products.”[24]

The next step is when the designer moves from operational design work towards design management. The first design management task is usually to co-ordinate the design of different products so that they visually appear to belong to the same product family. This is in many cases also the first time when design work that is not specifically production-driven, like concepting, has been done [25]. In the Nokia case this happened when products that had previously been manufactured under several brands, such as Technophone, Mobira and Nokia, were to be marketed under just one brand name, Nokia. The design task was largely to unify the product portfolio, rather than to diversify it.

Later, design management is incorporated to other units of the corporation. There has often been one project or department where design and design management work has proceeded exceptionally well, and the aim has been to transfer this success. In some cases this transition has happened smoothly, in others there seems to be some friction between the designer’s own unit, in whose opinion the designer should work only for them, and the larger role. In this transition, the sole designer has often moved from the mechanics department to the marketing department or to a

joint product development department. The designer's role becomes broader and less product specific.

"The managers of engineering design bought industrial design, if they understood to buy design, wherever. And then I suggested, I collected all the projects that were ongoing and did a document about them and analysed them a little. Then I showed it to my superiors and told them that we should take care of this in some way. And then the next question was of course: who will take care of it? [...] So I was thrown into the marketing department so that I would be, in quotes, on more neutral waters. And a matter of fact it was a good system, because there my hands were a lot less tied and I could work independently from the product development projects." [26]

The first designer usually spends a long time as the only designer before design is acknowledged as its own function and more designers are hired under a design manager. The role of the second designer in the company appears to be more diverse. In some cases it has been a person who has concentrated on an area that has been identified as critical for the company. In the Suunto case, a user interface design position was a possibility of growing the size of the industrial design function. In Nokia this role was held by the department of packaging design. Technical packaging design was combined with industrial design in order to form a design group.

"A: So at that time design was part of the mechanics organisation?

B: Yes. They most certainly were not an organization of their own. In principle I had my own organisation [for design], from which it apparently originates that the packaging designers are part of the design organisation. My superior at the time [...] just suggested once that we could create such a division as design and packaging. And so the technical packaging designers became part of my group." [27]

The second designer can also be hired as a replacement of the first one when this moves to design management. In some cases, the second designer is hired already during the previously mentioned phase of isolated designers, and when design is defined as a function both designers are transferred to the same unit.

This is the third level of maturation according to the BDC study; design is used on the strategic level in the company.

Eventually design becomes a vital part of building the brand. In the consumer businesses, product segmentation has grown in importance, and therefore the usage of research in the areas of trends, users and market development has increased very strongly. Design is often used to differentiate products into several product categories. The design thinking is largely based on the notion of total experience design; the design task is not only to design a product but the entire experience that the product creates for the end user, including everything from the first product story to how the product is displayed in a store [28].

In Suunto, despite the short development time, the design functions are a good example of a fairly well structured design activity; with a clear structure and role division as well as a defined position within the corporate structure. In the Nokia case, the expansion of the product portfolio also made the design functions more managerial and strategic rather than operative, as a

constantly growing part of the operative design work is subcontracted externally by the design unit.

The design functions in the areas of capital goods, such as Metso Paper, are besides usability and brand building issues used to a large extent used to save costs. Design saves more money through innovative part reduction than what they cost as a department [13]. The design thinking is needed for re-evaluating the entire product, in order to make it more competitive.

In the fourth type of company in the BDC study, design is one of the drivers for innovation. Design is used, besides for strategic matters, also to innovate totally new product ideas and to further enhance the future development of the company. In Suunto, Metso and Nokia design has become an integral part of the corporates strategic thinking, as well as a permanent contributor to the corporate vision.

Conclusions

The development paths of a design organisation is not rapid, nor easy. It included several difficulties, and situations where the role of design is not self-evident. But with years of persistency the organisations have slowly developed, sequentially through all the steps of development shown in other studies, to become a vital part of the companies' competitiveness and drivers of new innovation.

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