MEASURING THE INNOVATIVENESS OF DESIGN - MISSION IMPOSSIBLE?
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1. Starting point of measurement

The biggest problem in measuring innovativeness of design is that there is no obvious theoretical basis for it. For example, technological innovation research may lean on or at least gain assistance from innovation theories and measurings based on both neo-classical and evolutionary economic research traditions. However, Grupp (1998, 84) opines that not one of the technological innovation theories offers a direct solution to the problem of measuring a technological innovation. The problem is made no easier by the fact that design, unlike many technological fields, does not even have a corresponding research tradition.

Even if our theory of the economics of design was as good as possible, without measuring and definition of what a design innovation is it will be of no theoretical use to us. Measuring without any background theory is, of course, quite poor as well. Because we do not have a suitable theory for measuring, its starting point is strongly experimental. The evolutionary way of thinking is experimental in nature and it is loosely in the background when planning the measuring.

My paper primarily tries to consider how measuring should be done and what alternatives Finland would have in use for it. The starting point is, however, that even empirical measurement attempts require some kinds of concepts and knowledge of previous innovation theories. They, however, cannot be found anywhere else than in the field of technology.

2. Conceptual classifications of Schumpeterian innovation research

Until now, economic innovation research has focused only on technological innovations. Similarly, the basic concepts still in use in the research of the field have arisen from the world of technological innovations.

The most important classical theoretician in the field, Schumpeter, already separated inventions, innovations and imitations. An invention is a mere idea, draft or model. An innovation is an invention that an entrepreneur has commercialised in the market. And imitations are those innovations that other entrepreneurs copy. As far as I can see, this trisection works quite well for design innovations as well.

Another Schumpeterian basic classification related to product versus process innovations. This bisection is still the basic classification in all technological-economic innovation studies, only with slight changes in wordings. The breakdown into product and process innovations is fairly problematic for design innovations. The concept of process innovation is different in design from that used in technology and I thus exclude it from here. It has to do with such issues as inclusion of the user in design and the role of design in the general strategy of the whole enterprise. Division into radical and incremental innovations can be mentioned as the third basic classification.

3. Creation of design innovation databases

It may be more important to make first empirical measurement attempts in the area of design than to ponder upon the theory of design. One may perhaps move on to the theory only after sufficient empirical experiments.
From this viewpoint measuring of innovations in design would necessitate creation of different databases, for example. Partly product-specific and partly enterprise-specific data gathered to these databases call for answers to at least some of the following questions. 1. What is innovation in design? 2. What kinds of classifications can be used to measure design innovations? 3. How can information be collected about design innovations? 4. What kinds of databases would it be practical to produce on innovativeness of design?

The paper does not thus try to 1. Create a theory of design innovations, 2. Define the data to be collected, or 3. Make yet any calculations on the activity of enterprises having made design innovations or those using design intensively compared with those that have not made or used.

4. Novelty thinking

When creating the database we can start from this: to claim some product or process is a design innovation, it has to be new in some way. Each innovation study or theory must right from the start decide its relation to the novelty concept. Because we know that both new and novelty are very general words, they have to be specified on various dimensions. The answer is different depending on which dimension is used. There are two conventional, well-established methodologies in technological and economic research for innovation surveys, the subject and object approaches. (New in the object approach means a market novelty and new in the subject approach a novelty on the enterprise level).

When talking about object-based product innovations it is very essential to ask to which market the design is new. Is it a question of local or domestic market? Or maybe of a global novelty? For the subject approach the matter is insignificant in the present inquiries; the same design products may already be in the market, that is, it is a question of any market for the enterprise. However, on the object side the matter is more important. If it is a question of global level then it is a really significant innovation.

The classical basic definition of Schumpeter’s product innovation was: ‘The introduction of a new good or a new quality of the good with which consumers in the market are not familiar.’ (Schumpeter cited in Palmberg et al 1999) Interestingly, the basic definition does not say anything about the degree of the success of the innovation, it is enough that it has been introduced in the market.

The subject approach means that it is a question of a novelty from the viewpoint of the enterprise. The product in question may be in the market already before. In the most significant CIS Surveys using the subject approach respondents have been enterprises (Innovation 2004) and they have to (according to the Oslo Manual) assess whether the product is new for their own production, even if some other similar product was already in the market. (OECD 1997)

Is it possible to create some kind of scale model for different degrees of novelty? For example, in subject-based inquiries one could come up with the trisection: slightly, significantly new and completely new. In theory we can see that novelty in the case of a matter like design is always continuous and no scaling can be made. In practice, if we are doing empirical design research, it could be advisable to produce some scaling. For example, in surveys respondents must be offered some scaling model. The trisection used above could be good for this. However, the methodologically most important manual for technological innovation research, the Oslo Manual, does not have such scaling but there the term significantly new is used unambiguously. The object-based approach could also have some
scaling. This question is closely related to the division radical versus incremental innovation, which will not be discussed in this paper.

We can also ask whether to take in design innovation inquiries based on the subject approach even other parties involved in design besides the production enterprise of the final product. Other approaches could be represented by other parts of the value chain, such as the product’s designer, manufacturer, distributor, retail trader or final consumer.

5. Basis of classifications for measuring design innovations

Design-based product innovations can be divided into four groups by their ratio of technological and design novelty.

A. First of all, the most important innovations for the total chain of national economy are originally technological. If this technologically new product does not include any functional or appearance innovation, it is then merely a technological innovation. A pure technological innovation is fairly rare and mostly they also require both functional and appearance innovation.

B. Therefore the second group is formed of such new products that are simultaneously both technological and design innovations. In this group it does not matter as such whether the original incentive to the novelty came from design or technology. Some aesthetic design changes may require technical or other functional adaptation to make the design possible, such as use of new materials or components. For example, making a product smaller may require new technology or new components or new switchings. If these new functional changes are significant, then it is a question of a combination of design and technological innovation. In contrast, enlarging a product is probably mostly technologically easy, a mere design innovation if even that.

C. In some fields, such as furniture and clothes, design changes do not bring along technological or functional changes and they are therefore pure design innovations. The group is not restricted to only these fields, however.

D. Finally, we have such new products that do not include technological and thus neither functional nor design innovations. New forms or contents can be so slight that it may not possible to talk about innovations in their connection. The problem is naturally that if such small new things start to accumulate at some point they too become innovations. Drawing the line is difficult and requires case-specific definitions.

6. Object-based design innovation research and creation of a database

Product-based design innovations can be found in sections B and C of the fourfold table above. Process innovations are a different matter in design. A database has to be built for them on quite a different basis from that for product innovations and they are excluded from this examination.

Technological innovation-based design innovations

In Finland there has been only one object-based technological innovation survey and database but it is quite extensive, Sfinno by VTT (Palmberg et al 1999). The sources of Sfinno were: 1. expert panel, 2. scientific and other expert journals, and 3. companies’ annual reports.
The Business Register was used to search the producer enterprise or its present successor and various product-specific information for each individual innovation. Methodologically it is conceivable that a similar but applied method could be used for finding design innovations. In principle, most of the innovations included in Sfinno and the related enterprises can be considered to contain some functional element, i.e. belong to the scope of the design innovation concept as well. It would be necessary to go through separately what types of technological innovations do not perhaps contain any functional element. It can be thought that some innovations in the chemical industry are such. These cases should be examined by means of an expert panel separately for each industry.

It can be thought that Finland has important functional innovations not based on appearance excluded from Sfinno, for example in the field of ergonomics.

Appearance-based design innovations

If we try to find meaningful sources for appearance-based design innovations we can use at least the following sources:
1. Registrations of designs
2. Winners of design competitions and recipients of commendations
3. Presentations of design magazines
4. Interviews of design experts

In Section 8 I will present some features of one source for design innovation, registration of designs.

7. Subject-based design innovation databases

So far, there have been not even one attempt in Finland to build a subject-based design innovation database. In principle, the database could be based on a similar mechanism as the one for technological innovations made in CIS Surveys. In Finland CIS Surveys have been carried out three times.

8. Registration of designs

Industrial design can be broken down in many different ways with respect to analytical needs. Theoretically thinking, one of the most common ways is to divide it on the product level into appearance and functional dimension. For an analysis of design registration the appearance side has to be separated into two; mere external appearance and aesthetics. In practice this division is extremely difficult.

A right to a design is an industrial property right that protects the appearance of a product or part of a product. The object of protection can only be the appearance of the product; technical ideas that can be put into industrial use can, instead, obtain patent or utility model protection. The appearance of a design is the overall impression of its lines, contours, colours, shape, texture or materials. There are no requirements whatsoever as to the artistic effect of a design. (briefly of the community design law)

According to the law on design registration protection of design covers explicitly only the mere outward appearance. In order to make an application for design registration, attention has had to be paid in product development to all the elements of design in addition to appearance, i.e. aesthetics, functionality, raw material, ergonomics and all business objectives later related to the product. Thus design registration does cover all the aspects of design implicitly.
Relationship between design registration, appearance and functionality from the viewpoint of the designer.

To what extent do original designers, both external and the company’s own, take into consideration the design aspect already in the planning stage? There must be differences between industries and products. For example, in branches that produce such simple utensils like Fiskars, designers may have to take account of the requirements of design registration more than average in their work even beforehand. The design of Fiskars pruning shears is intentionally made into such that their manufacturing is very demanding and requires an expensive machine, thus preventing copying possibly even without design protection. How important design registration is considered as part of the company’s design strategy also influences whether designers consciously perceive it so as well.

Innovation approach of design registration

Design registration is an important source for measuring commercial creativity and design innovativeness. Each application for registration of a design represents a new appearance both from the viewpoint of the enterprise and the market (if the application is accepted), that is, it is a genuine innovation.

Design registration as a mode of protection is in part closer to patents and in part to trademarks. Similarly as patents it is used for goods but its application and maintenance costs are fairly modest compared with patents, that is, on level with trademarks. As an innovation indicator registration of a design is partly similar to a trademark because it demonstrates in its appearance directly the commercial novelty of the product, and partly similar to a patent in expressing indirectly some of the product’s functional novelty as well.

Goodness and badness of design registration as an innovation indicator

The use of design registration is not dependent on the company’s size, level of technology use and property. It does not entail high maintenance costs. Nevertheless, on the international level only the large ones of Finnish enterprises use it.

For statistical measuring the worst thing about using design registration is the incompatibility of the classification, which is even worse that that of trademarks, with the conventional Standard Industrial Classification. The restriction in calculating design registration as an innovation indicator is that it can-not contain the functional side of design directly but indirectly it can.

For innovation types design protection is a poor innovation indicator. Design registration cannot be used for protecting service innovations. Nor can it be used as an indicator of process innovation.

Design registration is sometimes felt to have a weaker protection level than a patent and therefore many companies are reluctant to use it and apply only for a patent. Often both a patent and design registration are applied for the same product.

One issue is also important in the use of all industrial property right indicators as an innovation indicator. If the use of the protection prevents or precludes innovativeness of other developers it can be a poor indicator from the viewpoint of entire society, even if it is advantageous to the company in question. Does design protection prevent design innovations of other companies? In my opinion it does not, it is always possible to buy a licence if one wants to use exactly the same format in some product. Design registration is in this respect
the least prohibitive form of rights protection. In addition, a known design protection may even increase innovation by forcing others to develop a new design.

<table>
<thead>
<tr>
<th>Ranking of old EU countries (incl. Norway) / registered designs in three areas per million inhabitants</th>
<th>JAPAN</th>
<th>OHIM</th>
<th>USA</th>
<th>GLOBAL</th>
</tr>
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<tbody>
<tr>
<td>Luxembourg</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Denmark</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5.0</td>
</tr>
<tr>
<td>Finland</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>Germany</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>6.3</td>
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<tr>
<td>Austria</td>
<td>7</td>
<td>4</td>
<td>11</td>
<td>7.3</td>
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<tr>
<td>Italy</td>
<td>11</td>
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<tr>
<td>Belgium</td>
<td>12</td>
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<td>6</td>
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<tr>
<td>United Kingdom</td>
<td>10</td>
<td>11</td>
<td>7</td>
<td>9.3</td>
</tr>
<tr>
<td>France</td>
<td>9</td>
<td>13</td>
<td>9</td>
<td>10.3</td>
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<tr>
<td>Norway</td>
<td>6</td>
<td>14</td>
<td>12</td>
<td>10.7</td>
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<tr>
<td>Spain</td>
<td>14</td>
<td>9</td>
<td>14</td>
<td>12.3</td>
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<tr>
<td>Ireland</td>
<td>13</td>
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<tr>
<td>Greece</td>
<td>15</td>
<td>16</td>
<td>15</td>
<td>15.3</td>
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<tr>
<td>Portugal</td>
<td>16</td>
<td>15</td>
<td>16</td>
<td>15.7</td>
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With design registration protection can be applied both nationally and more broadly. In recent years the EU’s Office for Harmonization in the Internal Market OHIM has gained more and more importance in registration of European designs. Community design has a so-called uniform character, meaning that the trademark can be registered only in the entire EU area and the legal effects of the registration are the same in that area.

In numbers the Nordic Countries do not hold quite the top positions but the situation is different when the numbers are taken as a proportion to the population. By population the Nordic Countries, with the exception of Norway, are very high on the list in the comparison of old EU countries (Alanen 2005).

To some degree the country-specific number of applications for design registrations may be influenced by how enterprises have experienced the efficacy of registered designs against those copying the design. Denmark is considered a country where the interpretation of practical law may be tightest in all Nordic Countries and it may also be reflected in that Danish companies are more prepared to apply for registration of a design from elsewhere as well. In Finland, where the interpretation may be more lenient, at least some companies are more accustomed to apply for a patent only. In relation to the size of the economy (volume of GDP in purchasing price parity USD billion) the Nordic Countries hold the same position in the European comparison as in the population comparison.

In the U.S. design registration is referred to as a design patent. In the U.S. Finland has a clearly higher position than in Europe, primarily thanks to Nokia. In Japan Finnish design and use of design registration is considerably more active compared with the situation in Europe and also in the U.S. Or maybe Nordic angst and minimalism has worked better in Japan. Or
perhaps Finnish companies have rather found it worth their while to be more active in matters of design protection there than somewhere else.

References:

END-USER KNOWLEDGE AS A TOOL FOR STRATEGIC DESIGN
Pertti Aula, Petra Falin, Kati Vehmas, Minna Uotila, Piia Ryttilahti, University of Lapland, Finland

Introduction

The need for end-user knowledge has risen to the fore both within companies as well as in research. The need for design in companies has grown correspondingly. These changes have a common factor – social change. The concept of the end user, in terms of both product development and its related research, has broadened to embrace a socio-cultural dimension in addition to its physical and cognitive dimension. The amount of knowledge in end-user research has increased quantitatively and diversified qualitatively. Companies need end-user knowledge from the level of strategic management to operative product planning at the practical level. We have endeavoured to respond to this challenge by studying existing forms of leisure pursuits and by analyzing their structures and developing a design method to manage this knowledge.

This paper defines cultural awareness as the key area of expertise in industrial design, which refers to making sense of the cultural significances of products and applying these to the characteristics of those products. These significances are initiated by end users, the environment, technology and companies alike. The appearance of a product is only the tip of the iceberg; a large quantity of dissimilar culturally significant structures lay concealed beneath the water. These structures are the foci of end-user research at the different phases of product development. The aim of design is to utilize these significances to incorporate cultural characteristics in products that are readily understood by end users.

Research environments

The Emergence of Luxury project, a multidisciplinary approach to hidden values and pleasure factors in new design products in different societal communities is representative of fundamental design research. The first aim of the project, funded by the Academy of Finland, is to investigate and define the phenomenon of luxury at the theoretical level. At the empirical level, the project aims at increasing the understanding of end users’ appreciations of luxury and high-level design products in Finnish and French contexts. Furthermore, the on-going research project attempts to produce knowledge on the creation of design products. The interoperability and transaction between the perspectives is essential in the project; it enables the creation of new areas of business and high-quality products as well as of the design competence and design skills these products require.

Luxury is a complex phenomenon, where numerous factors and processes are in transactional relation with each other. It is also a multistratal and multidimensional phenomenon. Luxury has been viewed as being linked to new experiences and new types of products that are based on the distribution of tacit knowledge among small communities. According to Reinmoeller: ’Luxury is pleasure and products that emerge from communities.’ Economically, luxury

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combines strategic marketing, marketing communications, consumer behaviour and branding with the aspects of design management and strategy.  

The Strategic Design and Modelling Leadership project (FutureFinders) is representative of applied design research. It receives its funding from Tekes, the Finnish Technology Agency’s DESIGN 2005 Industrial Design Technology Programme. A number of Finnish companies also contribute financially. The objective of the project is to develop a design method to manage multidimensional end-user knowledge. The background for developing the method has its roots in a project conducted earlier: Modelling the Socio-cultural Context (Mode).  

Perfecting a design method focuses on the strategic level of product development, which refers to the starting point in product development where the aim is to identify product prospects and to produce information that can be put to good use in developing a product. The design method aims at producing transparent and easily assessable end-user knowledge in order to support decision-making. Information produced using the method is within reach and for the benefit of all parties.  

When design is integrated into the method, the characteristics of the activity must be taken into consideration. Design is a creative activity where an individual, together with other actors, introduces cultural significances into products. These significances are prevalent in a social context and they are difficult to explain. In cases such as these, the method does not inherently produce design solutions; rather, it provides an accurate pointer as to where they may be sought and found. A further requirement is to facilitate cooperation and transparency. Justifying a design is frequently problematic. This method enables the documentation of solutions so consequently, solutions associated with a design may be examined in retrospect. When solutions are documented, representatives from different professional groups can participate in the work and provide their input.  

**Quality of end-user knowledge at the strategic level**  

Design activity has branched out to all levels of business operations. This has also been evidenced by the emphasis research places on the starting point for developing a product. End-user research is conducted at all levels of product development. There are as yet no answers to issues concerning the quality of end-user knowledge.  

Product development can be broken down into three main areas: strategic, tactical and operative. The aim of design at the strategic level is to seek new product prospects. The tactical level aims at creating product concepts. The aim of the operative level, i.e. the product design level, is to produce the final saleable product. These sub-areas combine to produce a company’s design strategy that is closely affiliated with its marketing and production strategy. The overall aim of a design strategy is to direct the search for product prospects and to rapidly produce product design solutions.  

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6 Modelling of Sociocultural context, Mode-project, [www.ulapland.fi/mode](http://www.ulapland.fi/mode)  
9 Hytönen, Jaana; Järvinen, Juha; Tuulennäki, Anssi, *From design services to strategic consulting*, 2004, Designium, 32.  
In recent years, end-user research into design has focused on the tactical level. The objective has been to find design drivers that serve as the foundation for developing the final product. The focus of research is a product that is part of the culture in which it is utilized and the result of this work has produced varying definitions of requirements for products under design. Largely, end-user research at the tactical level produces information primarily about a product and the context linked with the product is also presented alongside it. A context may be physical, social or cultural. End-user research at the operative level focuses solely on a product. By its very nature, this research takes the form of testing, such as usability tests, functionality and ergonomics. Here, the objective is to put the finishing touches to the final product ready for the markets.

The aim of our research is to develop activity and expertise at the strategic level. The quality of research information is selected to support this activity. We have concentrated on studying end users’ activity cultures, such as snowmobiling or sailing. The products used in these cultures are not the primary focus of research; rather, the focus is on the ways of doing things, phenomena and social interaction. This has enabled us to achieve a quality of information that is ideally suited to the starting point of product development. The aim of strategic activity is to find new product prospects where the development of a culture surrounding an activity or genre plays a key role. The genres are examined from the perspective of the end user.

<table>
<thead>
<tr>
<th>Product development level</th>
<th>Focus of end-user research</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>strategic</td>
<td>activity culture</td>
<td>product prospects</td>
</tr>
<tr>
<td>tactical</td>
<td>product in culture</td>
<td>product concept</td>
</tr>
<tr>
<td>operative</td>
<td>product</td>
<td>product</td>
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</tbody>
</table>

FIGURE 1. Levels of product development and end-user research

End-user research creates the foundation for product design throughout the entire development process. It is important to bear in mind that information follows the development of a product right to the finish. Another important aspect is who collects and analyzes this information. Workshops conducted during our studies have produced the best results when there has been all-round representation of actors from a company.

**End-user research focuses on activity culture/genre**

The representatives of companies and research institutes alike are unanimous when it comes to the importance of end-user research. The contribution of end-user knowledge in product development has vastly increased over the past ten years. The impetus came from personal IT equipment, such as mobile phones and pocket computers that were introduced onto the mass market during the 1990s. Product usability first focused on the importance of end-user knowledge. The perspectives of end-user knowledge spread rapidly and today, end-user research stands for a relatively comprehensive human concept.

Social change also has a decisive role in the rise to the fore of end-user knowledge. Individuation may well be the key characteristic of post-modern society, which has resulted in the fragmentation and re-formation of large end-user groups. The use of products and

12 see Wikberg, Harri; Keinonen, Turkka, Design driver in off-line wearability; in Miten käytettävyyys muotoillaan, Keinonen, Turkka, UIAH, 2000, 193.
technologies is structured along lines defined by social interaction\textsuperscript{14}. This change has led to researchers seeking answers ever more deeply from usage cultures and their phenomena. Ethnography has become a prevalent method in the acquisition of knowledge for product development\textsuperscript{15}. The foci of research are end users’ understanding, experiences and pleasure, in other words, phenomena that are formed socially.

Pro-Am culture is a good example of the way in which research has brought end users’ demands and activities to the fore. Pro-Am cultures comprise enthusiasts who take a professional view of their activities and the products required for those activities. They put in personal time and money for a leisure pursuit without receiving financial remuneration. Networking and innovation are characteristic of these cultures.\textsuperscript{16} A vibrant social network that adopts its own ways of doing things, and one that forms its own terms and conditions, exists within these cultures. However, the enlightenment of end users may also be the issue.

Snowmobiling and golf were the focus of research in the FutureFinders project whereas hunting, sailing and golf were the targets in the Emergence of Luxury project. Both projects used the same materials concerning golf. The projects concentrated on the modes of activity created through social interaction. Other leisure pursuits, such as hunting and sailing have long historical backgrounds. They were an integral part of man’s survival and development. The historical background of golf relates essentially to sport and competition, which largely produce experiences – they are activities that heighten the social dimension of life. Snowmobiling obviously has the shortest historical background; it has been a leisure pursuit for just under twenty years. The snowmobile has progressed from being a mere tool to become a piece of equipment for the extreme leisure pursuits of today. A common denominator in all these leisure pursuits is that they have not remained stationary in their development; rather their development will surge ahead in future and it will primarily be end-user centred. The key features in this trend can be maximized in product development and design. The cultural characteristics of a genre/leisure pursuit and new modes formed by social interaction rise to the fore as the foci of research. End-user research is beginning to see the formation of a new perspective on cultural competence, where the focal point is on cultural ways of doing things and systems such as leisure pursuits\textsuperscript{17}.

The SCC model - a way of managing end-user knowledge

The SCC model has its roots in the Modelling Socio-cultural Context project that took place in 2002-2004. It was funded by TEKES, the Finnish Technology Agency, and Finnish companies. The project conducted six case studies that were used as the basis to create a tool for modelling end-user knowledge.

One factor to the background of the SCC model is the future study and development of the scenario method\textsuperscript{18}. The basic idea of the design model has been adapted from the elements of the scenario method in future studies. There are three elements in the scenarios in future studies: a description of the present status of the target, a description of the future and a description of the process that connects an original state to that of a latter one. There are two


\textsuperscript{17} See Aula Pertti, Information technology for the elderly, in Designing for the future, Anna-Maija Ylimaula (ed.) UIAH, 2002, 256.

\textsuperscript{18} Mannermaa, Mika, Tulevaisuuden hallinta - Skenaariot strategiatyöskentelyssä, 1999 WSOY, 57.
main parts in the SCC model (Figure 2): a description of the present situation of a product and a description of the future situation of that product. The determination of the present situation is based on studies (a user study and/or market research) carried out during product development. The future situation of the product takes shape as the result of the design work. The future situation of the product is based on the conclusions concerning the present situation and on the strategies of the company. The central part of our model covers the elements of these situations. These elements have been named: product, usage, person, physical surroundings, context of social interaction and cultural context (Figure 2). This wholeness is called the elements of the context. The starting point is that this structure is used to describe both situations (the present and the future). This way design brings about transparency.

FIGURE 2. SCC model

The context has been divided into six elements. The element below partly includes the element above. For example, the product-element is partly included in the usage-element and so on. In the SCC model, it is the task of the research to produce the more exact qualifiers to the elements of context. Based on studies in the Mode and FutureFinders projects, the following factors rose to the fore:

Product: technology, the price of the product, the appearance of the product, properties, traditions, acquisition, purpose, services

Usage: duration, character, purpose of use, motivation, target, density, usability, peripheral activity

Person: consumer type, age, sex, values social station, experience, achievements, rules, competition, equipment, life situation, skills, other leisure pursuits

Physical surroundings: season, time of the day, size of the area of operation, context of the activity (home, job, hobby), weather, nature, services, recording experiences, the built-up environment
Context of social interactions: present, privacy of the product, social character of use, cultural background, social motivation of the activity, purpose of the activity, other events related to the activity, clubs, stimulus, network

Cultural context: safety, legislation, social trends, consumer trends, technology trends, cultural and historical background, change in activity, genre, participation, general attitude, technological development, social situation.

The information required to describe the present situation is obtained mainly through research. Several methods can be used to collect the research information. In the Mode and FutureFinders projects, the focus was on group interviews. When there is a question of user-centred product development, methods related to user-centerness (ethnographic methods) are employed as the means of research and data collection.

It must be remembered that every method determines the information to be obtained. The best results can be obtained when several methods are used simultaneously. It must also be born in mind that a model can link both qualitative and quantitative research methods. The second source of information is the expertise of the company about the target for development. The information the staff of a company has accumulated from earlier product development projects, customer feedback and claims can also be used. Social factors, such as legislation and the safety regulations, affect the present situation and they can be obtained from companies. In the SCC analysis model (Figure 3), the description of the present situation has been divided into two: the factors of the present situation and the variables of the present situation. It is a question of a hierarchical model in which the attempt is to name the elements more distinctly. These factors can be dealt with at a deeper level by using partition. This partition is also in the description of the future situation.

<table>
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<tr>
<th>Description of the present situation</th>
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<th>Description of the future</th>
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FIGURE 3. SCC analysis model

The description of the future situation is the result of the design process. The factors and variables of the future situation are formed based on the description of the present situation. The scenario method was used as the instrument of design in the Mode project. Working a scenario refers in this study to a tree phased process: (1) researching the socio-cultural context, (2) modelling the analysed information and (3) designing the use scenarios. In the study of the socio-cultural context, the information is gathered from the users and the company. The descriptions of the present and future situations are built at the stage of modelling. The descriptions of the future situation are changed into a visual form during the
design of use scenarios. The future situation can also be described in other ways, as multimedia presentations or stories for example. The FutureFinders project is developing a presentation method that utilizes visual materials alongside text. The visual materials could be described as “flashes” that illustrate future moments in line with the perspectives of the context model.

When perceiving the future, we are transferred from research to the area of design, when the truth-value of the information changes. The certainty acquired through research becomes uncertainty. However, the presentation of the present situation that has been produced through research serves as the basis for evaluation and provides direction for designing the future situation.

The future of the SCC model

At present, the SCC model requires a vast amount of work in order to be fully functional. The challenge facing future development will be to deepen the understanding of cultural ways of doing things and to perfect the SCC model.

The qualitative materials that have been collected through group interviews are currently utilized for developing and testing the SCC model. The aim in future is to apply the various research materials to the tool. The utilization of visual materials is one target in particular. We view the application of qualitative materials as another potential. In this manner, the tool and its section currently under study, in particular, will achieve increased credibility.

Collaboration with companies provided the impetus for developing the function of the tool. We have worked with company design, research and marketing departments. One course of action would be to develop a so-called “lite” version, where the aim would be to develop a concept model of the SCC model or a checklist method where applications would be found in products or product concepts under development. However, we also see a need for developing a full model that would be seen through to completion using a large amount of research material.

In conclusion

Several studies have indicated the underlying necessity of design methodology research and development. Close collaboration between research institutes and companies is of utmost importance in order to direct research towards the correct targets. However, fundamental academic research draws attention to perspectives that day-to-day product development has no time to address.

When taken into overall consideration, the standpoints of our project are strategically well selected. Our work has brought to the fore new phenomena for deliberation, such as the necessity for luxury in everyday products. The two current foci of our research are fundamental academic research and applied research. Both areas endeavour to develop know-how in strategic design. End-user knowledge is at the core of strategic design expertise. This knowledge is also an essential requirement for other areas of a company’s know-how, and these interfaces will doubtless become the foci of future research.
RESEARCH ON THE CONTEXT OF AESTHETICS
PLEASURES SHARED IN FASHION COMMUNITIES

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Abstract

In recent years, aesthetics has become a commonly studied subject in different major fields and has even been defined as an important enzyme in brand strategies, experience economy, emotion designing, and taste and style shaping, which has influenced not only the product contents and forms but also the role of designers. Therefore, from the designer’s point of view, these changes are no doubt examples of shifting design paradigms. The recent extensively-discussed subjects, such as civil aesthetics, stylish societies, aesthetics economies, and aesthetics experiences, have not only involved the discussions of material culture, such as formal aesthetics, functional aesthetics, and communicative aesthetics about product, but have also been shifted to the angle of immaterial culture, meaning that the subject has shifted from the objective beauty to that between users and products. This is what the German scholar Böhme called the “atmospheric aesthetics,” which means, “The physical beauty of products can be extended and connected to surrounding environment to create a sense of amenity, and such amenity can give people within the environment a sense of pleasure and provide functions of personal expression and social communication.” The so called “aesthetics pleasure” is defined herein as “the pleasure generating from aesthetics and as the shared fun with one another in response to the purpose and meaning expressed by objectives.” Therefore, this research discusses about the realization and the thread of thought of aesthetics pleasures in fashion communities through literature discussion in the hope of providing the preliminary structure of aesthetics pleasures and initially clarifying the fact that the so-called aesthetics has shifted from emotional subject to the index of harmony. It is not only an individual sense of pleasure but also a shared enjoyment with others. In a way, aesthetics has become an important bridge of communication and a significant key index in the leap of different fields in future.

Keywords: aesthetics pleasure, design, fashion communities

Introduction

Nowadays, broad attentions and discussions have been devoted to the study of aesthetics. Many reports or researches specifically pointed out the value and future prospects of aesthetics; some attempted to figure out the phenomena and tendency toward “return to beauty.”(Postrel, 2003) Even Norman (2004), the cognitive scientist who had been promoting “utility”, suggested that without emotional factors such as fun, pleasure, joy, or desire, life becomes incomplete. In retrospect to viewpoints on product functionality proposed in his books “The Design of Everyday Things” written in the 1980’s, he couldn't deny but acknowledge the importance of emotion under the changes of today’s society and lifestyle. To Norman, emotion is equal to aesthetics, attractiveness, and beauty. Therefore, as aesthetics becomes an essential target of design value, it also becomes an important issue. This study collected different concepts about aesthetics from relevant literatures. The major theories include Norman’s “emotion design”, Jordon’s modification on Tiger’s four pleasure conceptual frameworks to connect with designing, and Böhme’s “atmosphere aesthetics.” A novel aesthetics framework is induced and analyzed to serve the observation on the aesthetic pleasure shared by fashion communities, so as to picture the relevance and factors with the prevalence of fashion issues in Asia.
Emotional aesthetics

Aesthetics is an index of pleasure and meaning, by which objective beauty and atmosphere influences the senses of the “livers” (referring the collective image of daily labor and integrity of life). This sense of beauty is appreciated in emotional terms. Similarity can be found in “Qualia” proposed by Nobuyuki Idei (2002) – the quality of feelings as separated from quality itself, so as to shape the particular touch of human emotions. “Qualia” is not yet possessed by the livers; instead, it longs to be possessed. Therefore aesthetics has to explore, brew or even become a communication interface. It aspires to express the livers’ dissatisfaction in real life, as well as their craving for a certain lifestyle, further creating the demand for improvement in status quo. However, such dissatisfaction cannot be solely resolved by any individual, for aesthetics style becomes an emotional connection of a group through belongingness to the group, experience sharing and exchange within a community.

The aesthetic pleasures shared by a group via emotional connection, specifically, is “sensory stimulation generated by the sense of beauty in the product, connecting with the environment, evoking delightful moods in a person, and serving as a media for personal expression and social communication.” Basically, since culture can be viewed as a kind of ritual, popular culture can be regarded as a “fashion ritual” leading the contemporary trend. Such ritual encourages the livers to communicate with others by revealing signs for personality. That is because the so-called “popularity”, on the one hand, refers to the form and style of existence commonly recognized by the public in a period of time, such as costumes, music, and design, meaning “fashion”. On the other hand, popularity refers to the preference and pursuit for a certain style by a society or community in a period of time, meaning “fad”. Whether fashion is concerned with style or preference, it is related to the collective behavior of a community. However, the phenomenon of fashion has its anthropologic background, in which people’s pursuit and infatuation for fashion is not only derived from the natural instinct to imitate but also from the curiosity for the game of creativity played with changeable styles of fashion. Basically, origin of fashion can be traced back to our desire to communicate with community; hence the integration of fashion community serves in a mutual way—conveying personal messages and facilitating communication with the community or the society. Generally speaking, the pursuit for fashion not only symbolizes wealth and taste but also satisfies the desire for a sense of belongingness to the contemporary society. The similarity of aesthetic experiences prolongs the shared aesthetic pleasures, and further forms a specific aesthetic atmosphere.

Identity of Fashion Communities

Community is an organization in which experiences can be shared. Lifestyle shared whether in physical or virtual communities have become a factor in a liver’s attempt to achieve identification, individual expression, and social communication. Many communities have been extended from virtual network into physical activities, making community activity a good business. As a platform for people sharing similar interests to exchange opinions, also with supports from opinion leaders, such activities are connected with a series of aesthetic and pleasant experiences. Sensory pleasures ensued from physical objects, as well as that between people or between human and the environment, all together shape a collective aesthetic atmosphere in correspondence with the “atmosphere aesthetics” proposed by Böhme. As the community explores the aesthetic experience, what comes along is "affiliation" proposed by Anne Hollander (1994) ---the psychological tendency to get close to others, or a sense of recognition or belongingness. Furthermore, livers of such communities usually possess identifications in more than one community; they are the “multi-performer” proposed by Niki Mari (1988). In other words, livers themselves have interests in a plurality of aspects,
enhancing the interaction and interrelation between different communities, so that shared aesthetic themes can inspire various aesthetic echoes.

The chase for stylish taste by fashion community is in fact driven by “herd instinct”, which is demonstrated in the public’s tendency toward longing, desiring, and worshiping. Therefore fashion can rapidly nucleate crowds of people, leading them toward any direction just like the religious “shepherd” who guides sheep herds. Also, livers also feature a psychological desire for “being similar to others”, which infuses the flood of fashion. According to relevant surveys and studies, although livers have adequate intelligence and capability to fight against the public for the manifestation of their own uniqueness, most of them would rather choose “similarity”, because the later is the crux of community's solidity. As Bourdieu (1984) said, consumers obtain objects via consumption behaviors in order to appreciate the messages that designers of popular culture intend to convey, as well as to express their pursuit and craving for such favor, taste, and social status. Participation in the atmosphere of popular culture, on the one hand, reveals their curiosity toward popular culture; on the other, the play with these objects in daily life demonstrates one’s style, so as to pronounce the liver's identity and recognition.

Aesthetics pleasures

The aesthetics discussed here adopts different perspectives from philosophy and psychology. Aesthetics is no longer a metaphysical literature but integration with the social functionality of daily life. This beautification of everyday life can also be called as the amenity of the environment. This amenity, however, is not only perceived by individuals in secret but also imbued by the overall environmental atmosphere. Only by the mutual penetration between object, people, and environment could a unique stylistic aesthetics be shaped. And fashion community is the group of people who vividly reflect these phenomena. The “atmosphere aesthetics” proposed by Böhme is also the interface between people and objects or even the scenes, making the object, people, or environment ooze a certain kind of atmosphere. This emotional reaction occurs when one really attends in the scene, appreciates the atmosphere, and experiences the vibrating delight. This inspiring touch of the mind leads to the pleasure of happiness via feelings, experiences, memories, and sharing.

Aesthetic pleasures can be stated in a hierarchy. Jordon (2000) once modified Maslow’s theory to propose the need hierarchy of design: functionality → ability → pleasure. The aesthetic pleasure of fashion community pleas for desire, not basic needs. Therefore, functionality and usability are critical requirements while pleasure is the cement that congregates a fashion community. Hence Jordon connected objects with the framework of four kinds of pleasures proposed by anthropologist Tiger (2005):

1. Physio-pleasure: perception in the physical level, such as contact, taste, touch, and so on. Chocolate, for example, produces pleasure by gustatory sense. Another example of the object is the cookie box of “Mary Biscuit”, a product of Alessi. It is molded in the shape of a cookie, exuding the flavor of the cookie and conveying the physio-pleasure by visual and scent approaches.

2. Socio-pleasure: the pleasure related to the relationship with others. The object facilitates the interaction in the society or serves as a symbol for communication and demonstration within communities. This intercommunication is achieved by signs. The recent most popular product, i-Pod, for instance, has become the symbol of one’s aesthetic taste with its significance in a sense of beauty.
(3) Psycho-pleasure: the pleasure associated with human reaction in terms of both cognition and emotion. Emotional response is aroused by the operational experience of an object. The plea is the usability of an object, i.e., the functional experience generated while one uses this object.

(4) Ideo-pleasure: the pleasure in relation to human values. The object connects and integrates aesthetics with values, with particular emphasis on the harmony with the environment. A fable can best explain this kind of pleasure. When a rose appears in the messy room of a frowsy man, the incongruence becomes so obvious that this man's life order and aesthetic experience has changed.

Similarly, Tiger’s framework for the exploration of emotion is also modified by Norman who proposed the three designing hierarchy of visceral, behavioral and reflective level as the correspondence. Norman’s interpretation for “visceral design” refers to the appearance of a product, while “behavioral design” refers to the performance and fun in the operation, and "reflective design” refers to personal image, memory, and satisfaction. Figure 1 shows the comparison between the viewpoints of Tiger and Norman. Whether it is the interpretation of Tiger or Norman, the levels of emotional pleasure are within the compass of physio-pleasure (object), psycho-pleasure (person), and socio-pleasure (interpersonal), and further enhanced to the themes of environmental aesthetics. In other words, it starts from the simple reflection on an object to the relationship between human and object, the connection between people, and the contextual evolution between human and environment. Therefore, this process can be defined as the hierarchical evolution of aesthetic pleasures.

FIGURE 1: The Connection about aesthetics pleasures of Tiger and Norman
Aesthetics Pleasures Shared in Fashion Communities

FIGURE 2: According to the concepts in Figure 1, a new conceptual framework in correspondence with the hierarchy of aesthetic themes is proposed and connected with Norman’s viewpoint.

Yet this framework can be modified with regard to Böhme’s “atmosphere aesthetics” and Jordon’s “need hierarchy of design” as follows:
1. Physio-pleasure: concerns the object itself with emphasis on the functionality of the object.
2. Psycho-pleasure: concerns the interface between the product and human with emphasis on the usability of the object.
3. Socio-pleasure: concerns the correlation between individuals. When an object carries reference, it brings about the pleasance in relationship with others and further achieves the functions of personal expression, identity, and social expression. In this level, the focus is on Qualia, which transcends material and psychological levels to generate the inspiring joy.
4. Eco-pleasure: concerns the ambience of the overall environment. It also is the indicative level for the shaping of stylistic aesthetics. The shaping of an identifiable style induces a harmonious environmental aesthetics.

Observation on fashion community within this framework reveals that popular culture signifies the style of a certain period of time as a series of dynamic, vagrant changes, satisfying people in the level of desire. Therefore, it belongs to social pleasure. The eco-pleasure, on the other hand, have a specific, and also more stable, stylistic aesthetics shaped. In correspondence with Norman’s “emotion design” concept, both behavioral and reflective levels are concerned, because the former refers to the utility and pleasure for use while the later refers to personal image, identity, and satisfaction. Since social pleasure refers to the correlation between individual people, all the communities share similar pleasure. Wills (1990) applied the concept of “proto-communities” to separate them from the traditional “organic communities”. Specifically speaking, a community is not formed for a certain purpose; instead, it’s established by the desire for fun, interest, or sharing. People become
associated by sharing lifestyle, aesthetic pleasures, interests, and opinions, and feature the characteristics of organic communities. Moreover, in fashion communities, personality is externally signified and hence particularly connected with aesthetics pleasure. Daily life is hued with aesthetics, because a strong sense of belongingness to the society is characteristic in human beings. Gathering in the community makes the value and meaning of existence more sensible.

Conclusions

This paper first proposed a basic framework to describe fashion community in the hierarchy levels of aesthetic pleasures. Further, the focus was turned to the quality combinations of themes in aesthetic pleasures, which are definitely constructed by single one factor but involved with other combinations of factors, such as "system of attributes" (Schmitt & Simonson, 1999) "association attribute" (Findeli, 1994), and "combination of qualities" (Walker, 1995). Regardless of the phrasing, most researchers agreed that aesthetic pleasures are systematic frameworks composed of multiple factors. Such concept is similar to "synesthesia" (Schmitt, B. & Simonson, A., 1999), the ambience composed of many feelings. And with depths from micro to macro, the resonance of each sensory perception generates an emotional harmony. This can be referred as “total beauty.” In the future, this aesthetic pleasures framework will be tested for verification. Further, the composing factors will be examined to facilitate the mapping and observation on aesthetic pleasures in various cultures, communities, or need hierarchies.

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INNOVATION, INVENTION AND ARCHITECTURE
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There will be more new inventions occurring in the present design student’s lifetime than all the inventions created from first recorded history to the present. Two thirds of all the jobs available in the world by 2020 have not been invented yet. Tom Peters, international business guru, forecasts that 90% of white-collar jobs will be either destroyed or altered beyond recognition in 10-15 years. The student that does not adapt and morph with change will not fare well in the future. By 2015, it is predicted that a person will have to morph every 5 to 10 years to be viable in the global market. The future belongs to people who see possibilities before they become obvious. Ten years ago the term Webmaster was not in the dictionary. Design firms that specialize in designing websites number in the thousands today. Six years ago there were no Internet travel sites until someone created a hybrid of the growing trend of leisure time and computer ownership and formed Travelocity which spawned other travel sites. The UK alone has 100 travel agencies closing their doors each year. What can be invented today that will put you out of business tomorrow?

Look for disruptive technologies that will create new domains. Nanofactories are predicted to arrive sometime in the next 10-20 years. Nanofactories are capable of producing almost anything atom by atom. With nanotechnology you will be designing and building machines in which every atom and chemical bond is specified precisely. They will become so inexpensive; they will be in every home producing any product from a downloadable file for a fraction of the cost of the manufactured product. Nanofactories have the ability to eliminate jobs ranging from manufacturing to distributing to sales. Nanofactories will also create thousands of jobs that don’t exist now. Industrial Designers have the potential to sell their creations over the Internet to be downloaded and built in a nanofactory in your home. Any product or part that is needed can be produced from downloaded files. Industrial designers can research, build and test their designs with a nanofactory in minimum time. They can then market and sell the designs eliminating the middle sales people. A really talented industrial designer could become as much of a household word as a rock star. Nanotechnology is a disruptive technology.

Nanofactories that produce food from atoms will take a longer time to develop but it will happen. The Scientific Imperative is if it can be done, it will be done. No one country can block progress in a domain. The nation that does not act like challengers, even if they are the current world leader, will soon be delegated to a follower position. We will be adding three billion people to the earth in the next 40 years by today’s predictions. And by today’s predictions, there will not be enough water and food to have a sustainable world. What are not taken into account are the new developments in longevity. Flexible housing needs to be investigated and that housing must be barrier free. Two thirds of all the people in the world that have lived past 65 are alive today. As advances in genetics and biotechnology continue, people are going to live longer and the 3 billion projected increases in population could become 6 billion. Are architects prepared to conceive of new housing solutions or will they react after the fact? Will the solutions, by default, be placed in the hands of politicians? The benefits of new biotechnologies will bankrupt the retirement accounts and pension plans of individuals and countries as they are currently established. Twentieth Century solutions will not solve Twenty First Century problems.

2015 is the date predicted that birth defects and diseases could be eliminated in the womb. By 2025, nanosensors can be placed in the body to monitor all body functions and send data directly to your doctor. Microscopic machines will monitor our internal processes, remove cholesterol plaques from artery walls and destroy cancer cells before they have a chance to form a tumor. MIT is modifying cells into primitive digital computers. They want to create
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Fostering Innovation

cells that will deliver drugs within a person’s body. Emerging biotechnologies will be incorporated into our bodies much as pharmaceuticals are. Caltech medical researchers are working on a nanolab. It squeezes highly automated processes in systems biology onto a one square centimeter silicon chip that has the power to outperform entire laboratories. What will be the function of hospitals and medical facilities in 2025? How many hospitals will be required? How will the new technologies be reflected in healthcare design? In less than twenty years, healthcare facilities will have to reflect the changing technologies. Will architects be the leading researchers who will create the new environments of the future?

Another area for all designers will be virtual reality. By 2030, when we want to experience virtual reality, embedded nanobots would suppress the inputs coming from the real senses and replace them with the signals that would be appropriate for the virtual environment. Embedded nanobots will be able to trigger emotional overlays, sexual pleasure and mental reactions during virtual reality experiences. Virtual vacations thrill seeking, healing environments, and therapeutic physical and mental treatments could be available through virtual reality. It could have a negative impact on travel locations, airlines, hotels and services. What could be invented today that will put a domain out of business tomorrow?

An architect is perfecting a virtual reality podium where the speaker appears in the room and only the organizers know the speaker is not present in the flesh. The speaker can focus on questions from participants in the room and give them the same eye contact as if he/she were present. Boardrooms are being designed so that a virtual meeting can be held with participants from all over the world. The same boardroom is duplicated in every country where there is a participant and each person appears at the conference table conversing in real time with instant translation. What services and industries might that invention put out of business? Remember the movie Minority Report? Architect Chad Dyner has just patented a free space TV/computer screen that hovers in mid-air. Sensors can detect when a user’s hand or pointer touches the image, allowing a finger to serve as a mouse. Last year the IBM White computer had the ability to download the United States Library of Congress in 2 seconds. By 2017, your iPod will be able to hold the United States Library of Congress. How will this affect the design of libraries? Will architects help to design new libraries that anticipate and create accelerating change or will they be knowledge workers that are hired to implement someone else’s knowledge creations? Designers must look at emerging future research and trends and anticipate a world in accelerating change.

“The twentieth century alone features more turning points in the history of mankind than the previous five centuries put together! When people think of a future period, they intuitively assume that the current rate of progress will continue for future periods. We assume that progress changes at the rate that we have experienced recently. At the 2004 rate of change, the entire 20th Century would take place in 25 years. By 2030, the entire 20th Century would take place in one week. The rate of change itself is accelerating”-Ray Kurzweil from his keynote speech to the World Future Society in Washington DC, July, 2004. Will architects be planning, researching and creating the future or reacting to the future? Biotechnology, nanotechnology and artificial intelligence have become engines of the global economy. Creativity is the currency of the new millennium and intellectual property is the coin of the realm.

The university of tomorrow will not resemble the university of today. “The fixed person for the fixed duties, who in older societies was such a Godsend, in the future will be a public danger!” Alfred North Whitehead. The rapid and dynamic demands of problem anticipation, identification and solution will put a premium on continuous learning. Our concept of school will have to change to allow for accelerating change and growth in knowledge and learning.
Baron and Taylor in their book, Scientific Creativity, state that it takes 3-5 years for a person to recover from their University experience before they create any new knowledge. Most universities are producing knowledge workers. The knowledge worker will be the equivalent to the assembly line worker of the 20th century. They will be competing globally for any job that does not require proximity. In the 21st Century, a person will be competing with the world for any information that can be reproduced. Technology Review has a yearly list of the best knowledge creators under age 35 that hold new patents, create companies and innovate breakthrough research. The majority of the knowledge creators have combination degrees like computer science and genetics or electrical engineering and biology. No architect has ever made the list. The merging of domains is creating the new fields, hybrids and jobs! Are our universities helping to cross-pollinate and create the future? We should be morphing with other curriculums to create new and exciting futures. Design education is by its very nature a different way of seeing the world. Several business colleges in the US and Canada are asking design colleges to create courses for their students to learn design thinking. They want more than a bottom line analysis of a business problem. As a result, there has been an increase in creative problem solutions coming from the business students. Stanford’s College of Engineering requires two courses on creativity to graduate. Einstein called his own work combinatorial play. In the future top tier universities will be ranked on how well they facilitate combinatorial play between domains. Students should be able to synthesize, creatively combine domains and create knowledge.

To encourage creative thinking in an age of accelerating change, I designed a course for students to be knowledge creators. The students have to sign a nondisclosure statement to get into the class and the required projects include soft innovations, hybrids and inventions. The students create some of the projects as individuals and some in groups. I organize the groups of students by mixing various curriculums, including gender mix, to generate rich dynamic ideas. The class covers creativity, invention and future studies.

Since the act of creation occurs in the flow state, the students are introduced to the concept of flow in the first part of the semester. Many domains use the terms flow, white moment or zone to describe the mental state that results in optimum behavior in creativity. Over the years, I have adopted several methods to help the students discover the physical and psychological environment for flow. Since tension inhibits creativity, I incorporated progressive relaxation exercises developed by Harvard Medical School in the 1920’s for patients that need to reduce blood pressure and were allergic to medications. I use guided imagery exercises to visualize designs. We talk about environments that support flow. The act of creation is a self-involvement and is usually not a public performance. Aloneness is usually required for the student not trained in the art of flow which is why many students are more creatively fluid working nights when they have more opportunity for uninterrupted flow. The class works in groups to complete classical divergent and convergent problem solving exercises. I have guest speakers that inform the class about patents, copyright and trademark issues. A venture capitalist informs the class of opportunities and offers them financial support, marketing plans and physical space if their idea is worthy of investment. My university is one of three universities in the United States that has direct links to the United States Patent Office computers in Washington DC. The students have free access to utilize these computers to research any of their ideas. The students must present their ideas in class and the students evaluate each others ideas as to their commercialization transfer potential. Several students have sold their ideas and some have filled for patents. The purpose of the class is to direct the students to be knowledge creators. To be viable in the future, the students must be producing knowledge instead of reproducing knowledge. The final asks them to investigate emerging technologies and envision a world in 2030 in their groups. Individually they must research how new technologies and future trends will morph their intended domain.
by 2030. Most students discover that their intended domain may radically morph or even disappear by 2030.

“Do not go where the path may lead, go instead where there is no path and leave a trail.”
Ralph Waldo Emerson
GOVERNMENT PARTNERSHIPS WITH DESIGN AND BUSINESS COMMUNITIES: EVALUATING THE NEW ZEALAND DESIGN TASKFORCE PROJECT

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The recent government initiatives to involve and promote design in business in New Zealand show the effectiveness of state support for design-led business. Government support of design can be traced back to the formation of the New Zealand Industrial Design Council in 1966. The demise of this organisation and the recent initiatives to support design-led business reflect differences in political ethos by successive Governments. The new initiatives by the New Zealand Government to establish the Growth Innovation Framework followed by the Design Taskforce, the Design Leadership Group, and the Better By Design organisation, coincide with a move away from Neoliberal policies and a return to a more participatory role.

Using qualitative data from interviews with members of these groups, and documents published by their organisations, the paper brings together a largely positive evaluation of the initiatives of the Design Taskforce. Design partnerships with business can be successful in this objective, but for this to be possible, the respective professional fields and the related knowledge in the form of capital needs to be understood and recognised. In this paper I consider the interests of these fields, and the importance of the knowledge bases that they hold. I will evaluate the successes of the Taskforce initiatives achieved through the Better by Design programme which followed it in 2005 and the effectiveness of Government’s participation in promoting design to business.

Government partnership in design in business promotion

The establishment of the New Zealand Design Taskforce in 2003 marked an unprecedented interest in recognising the importance of design as an enabler in terms of innovation and fiscal gain for the nation. Interestingly, the initiatives for the establishment of the taskforce came not from presentations from the designers’ own professional organization, the Designers Institute of New Zealand (DINZ), but from business members of the Growth Innovation Framework earlier set up by Government. The initiative was based on observations of other countries, that design could be an important enabler for the growth of innovation in business.

Changing political climate

There are ironies to be found in trying to relate the receptiveness of successive governments to funding initiatives directed at supporting design. The New Zealand Industrial Design Council (NZIDC) was established in the Design Act 1966, by a National Government and disestablished by Labour Government in 1988, whereas the Design Taskforce was set up in 2003 by a Labour Government following a more socially based participatory policy than the New Zealand National Government that it replaced. In 1966 the NZIDC was set up with an assumption that New Zealand products needed to be better designed for export markets and at the time many New Zealand products fell very short of similar products manufactured elsewhere in the world. To those familiar with the accomplishments of the NZIDC, there are obvious precedents for aspects of the Design Taskforce\(^1\). In contrast to the NZIDC, the Design Taskforce has strong government support. Jim Anderton, the Minister for Economic Development, understood the need for design-led business, emphasising that design was under-used by New Zealand businesses, advocating the

\(^1\) A discussion of the many parallels is outside the scope of this paper.
need for better linkage between ‘highly competent designers and our innovative businesses’ (Taskforce, 2003 p.2). He stressed the importance of these partnerships to improve New Zealand’s economic growth. The main policy ideas of the Taskforce document *Success by Design*, (entitled ‘A Report and Strategic Plan from the Design Taskforce, in partnership with the New Zealand Government, in support of the Growth and Innovation Framework GIF’), were tabled by him in a report to New Zealand cabinet (Anderton, 2003). *Success by Design* was to set much of the direction for the developments to follow.

**Models from other countries**

The establishment of the Taskforce was to a significant degree, triggered by an awareness of the demonstrable value of design to business seen in other nations. The report cites successes from elsewhere in the world, particularly Finland, where it comments on a national design strategy in which it stresses that Finland’s *Design 2005!* is built on ‘its already well-established cultural heritage of a strongly design-enabled nation’ (refer Walton, 2003, p.8). Attention is drawn to the way in which the country’s international competitiveness has been achieved ‘by raising the standard of design education and research and integrating design into a broader national innovation strategy and by promoting Finland as a design leader’ (Taskforce, 2003, p.24). The report also refers to the success of the creative aspect of South Korea’s national design strategy.

**The New Zealand context**

A number of issues have contributed to New Zealand’s poor economic performance including the low investment in Research & Development, failure to commercialise ideas, distance from New Zealand’s major markets, and the tendency of companies to produce design themselves or on an ‘ad hoc’ basis so that the ‘design of new products and services is often not aligned with market demand and has offered less certainty for export success’ (Taskforce, 2003, p.8). The report states that less than 4% of New Zealand firms export, only 151 firms export more than $25 million a year, only 51 firms export more than $75 million a year (p.16).

It advocates addressing these systemic issues by spending research and development funding in areas of marketable endeavour, commercialising innovation, enabling companies to be competitive in products and services and opening up options for off-shore manufacture or licensing to address the ‘tyranny of distance’ (*ibid*). The strategy to achieve these objectives involved ‘Raising the awareness of design as a key enabler for industry in New Zealand by having more New Zealand businesses achieving sustainable export success, a more capable, business-savvy design profession and greater international recognition of New Zealand design’ (Taskforce, 2003, p.5) although from the outset, the emphasis was on design’s contribution to business and not on improving the infrastructure of the design profession (*ibid*). There is a bias towards a business ownership of the Taskforce initiatives as the Taskforce report states, ‘It is not primarily a design industry strategy but rather it sets out to make New Zealand business the beneficiary of design-enabled initiatives’ (*ibid*).

**Evaluation of the Taskforce Initiatives**

The Taskforce initiatives implemented through the Better by Design (BBD) programme were directed at both informing businesses about the value of design and enabling businesses to use

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2 Success by Design is referred to as ‘the report’ in this paper.
design. They took the form of practical assistance to business and promotion of education projects relative to design-led business. The evaluations in the case of each of the following initiatives are based on the conclusions offered by the participants in the relevant organizations interviewed.

1. Establishing a design reference group
The design reference group, quickly renamed the Better by Design Advisory Board, was established with equal representation from business and design, to guide the implementation of the Taskforce’s strategy (Taskforce, 2003, p.44). Specialised expertise comes from contracted groups like those required for audits and Profit by Design design strategy and management course. The Board has an important role in vetting audit proposals and applicants for auditing roles. It has successfully kept to an advisory role, leaving BBD programme project leaders within New Zealand Trade and Enterprise (NZTE) to implement the strategy.

2. Developing a communications programme
The communications programme has aimed to promote a greater understanding of the value of design in business strategy particularly at management level, through design leadership, nationally. It sought to generate case studies to educate business and those outside business, about design. It is charged with generating a culture that will assist in creating a better world status for New Zealand design. The communication programme was focussed initially on the lead up to the BBD conference in March 2005, and then with the development of the BBD website and design directory.

3. Organising a design conference
The Better by Design conference, held in Auckland in March 2005 has brought business leaders together to launch the Taskforce initiatives through the BBD programme. Its focus was both on promoting an awareness of the relevance of design as a means of adding value and on securing the commitment of this sector to the programme. Case studies from pilot companies that had successfully completed the audit process, added authority to the delivery of the conference objectives, thus creating credible advocacy from Small to Medium Enterprises (SMEs).

4. Developing a design resource directory
The web-based BBD directory has been rapidly developed to facilitate the process of accessing professional designers and design-related services (Taskforce, 2005). It is intended for the business sector, educators and government organizations. The reference guide proposed in the Taskforce Report to offer a variety of other resources to companies that are not ready to apply for audits, is gaining increasing use by the business sector as the directory continues to be developed. The directory has been well supported by the design community.

5. Developing education initiatives
The education initiatives include internships, design management courses for senior managers in business, commerce and engineering, and accreditation of tertiary design qualifications. Education initiatives have been developed by a sub-group linked to the Tertiary Education Commission (TEC). Change will be brought about in a number of ways once these initiatives are developed further.

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3Representatives from the Design Taskforce, Better by Design Advisory Board, Better by Design Programme, and TEC were interviewed.
The design internships aimed at business and emerging undergraduate and graduate designers will shortly move from pilot to implementation stage offering better understanding of design and business processes to businesses and students. The academic forum projected for 2006 will open up knowledge sharing across design, commerce and engineering courses and consider how accreditation may apply to design qualifications. Profit by Design, the first design strategy and management course has been offered to assist in building awareness of the value of design to business managers. Research and development continues to be funding approved by TEC, through programmes 4 set up to develop the social networks to allow that research and development under funding with interagency coordination in this activity. The Taskforce saw the project initiatives to be unable to address the issues of research to the level in Finland where strategy had been centred around education and where a number of industries were using design more successfully than in New Zealand. The Taskforce started from a more pragmatic base by concentrating on other initiatives.

6. Establish a design audit/mentoring programme
Audit programmes assist businesses to assess their design capability and to consider how effectively they are using design. The audit teams make expert practical advice available to businesses regarding design communications and product development, through mentorships. While initially it was expected that larger companies would apply for audits, the applications so far have largely been from SMEs. This is relevant to the Report’s objective of building questor companies that others may seek to emulate, where it proposed ‘In the first five years, at least fifty existing businesses made internationally competitive through design leadership, generating an additional NZ$500m per year in export earnings, growing at five times the targeted Gross Domestic Product to produce NZ$1.5 billion by year ten’ (Taskforce, 2003. p. 9). On the basis of the present response by largely SME companies, reaching that goal may require a greater number of companies rather than a few large questors, thus modifying the original Taskforce objective.

7. Establish a design project programme
Through this project, businesses are able to access design expertise for one short-term design project after their audit and see the benefits of design and design partnership in their business. For audited companies this first project can address some of the recommendations that have arisen out of the audit. Several of these projects are now under way.

8. Establish design funding and financing assistance
This programme offers financial assistance to permit more New Zealand businesses to employ design strategically through existing funding schemes for design investment and through subsidised internships. The initial funding from the Ministry of Economic Development has enabled the BBD programme to run successfully. However, the Government favours state and private partnerships and would ideally favour the programme being industry run in line with the policies of countries like Denmark (Ramlau, 2004, p.49). It is likely that there will always be a component of Government funding. Setting up a design agency is a future initiative of BBD that will require some level of private funding and be administered by a Government agency in this way. The Taskforce sought Government commitment to fund the priority initiatives over the first five years expecting that the scope, budgets and governance disciplines for each initiative would

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4 The Growth and Innovation Pilot Initiatives (GIPI) set up to develop their capability to collaborate with business in the design, information and communication technology and biotechnology sectors are an example.
‘be required to be further developed, challenged, refined and agreed by the stakeholders before committed funds can be drawn on’ (p.51).

9. Creating an international design cluster
Besides earning export dollars, it was envisaged that these clusters would enable design professionals to compete internationally on large contracts and serve to promote New Zealand’s international design reputation. No clusters have been established as a result of this initiative. It seems that they will arise indirectly out of raising the profile of New Zealand design, just as the recent successes of film director Peter Jackson and Weta Studio have done.

Sustaining the momentum
Taskforce initiatives, including The BBD conference, the Profit by Design business seminar and the design audits have had the support of a significant representation from the business sector. Attention needs to be turned to reaching the companies beyond this sector and the designers outside the audit teams, to understand the full potential of each in working towards the Taskforce objective of exploiting design opportunities in business more fully. Although recent Taskforce initiatives have heralded change, some in the business sector and visibly the SMEs cling to an ‘ingrained make-do mentality’, reflecting the way in which they prefer to use finance elsewhere in the business and undervalue the knowledge that could open up opportunities for innovation and development. (Taskforce, 2003, p.17)

According to some from BBD, the design profession’s ability to provide enough designers with the required understanding of the business application of design required for audits may be inadequate if the audit initiative starts to grow significantly. However, from the outset, providing education and professional development for the design profession that may have helped to address this, was seen to be outside the scope of available funding for the project, other than through education initiatives, the results of which necessarily require a period of time to develop. That this situation should arise brings into question the emphases on relevant knowledge relative to design and business and contrasts sharply with other nations like South Korea where developing the design infrastructure was given much higher priority, in the form of a Government policy that fostered design standards, promoted a design environment through its design centre and design week, supported research and development projects and created innovation centres (Cho, 2004, p.16).

Changing emphases on relevant knowledge within the fields of business and design

Questions centre on the designers' understanding of discourses of business and businesses understanding of the discourses of the field of design. By using the term ‘field’, I make reference to Bourdieu's model of field meaning ‘a network of objective relations’ in which ‘the positions and their interrelations are determined by different kinds of resources or capital’ (1991, p.14 ). ‘Capital’ may take the form of cultural capital, the knowledge relative to practice in each field and economic capital, the means to fund the initiatives important to each field. The notion of capital is particularly relevant in attempting to understand the changing knowledge bases involved in moving to a more design-led approach to design and increasing designers’ business awareness. It brings into question the ‘habitus’, the sets of dispositions that create practices and perceptions relative to a field. Through considering the habitus of the design field45 (Bourdieu,
1990) and the business field respectively, the values attached to acquiring forms of capital relative to each field can be seen.

The changing emphasis on understanding the business interface to design underlined by the initiatives of the Taskforce is particularly pertinent, as participation in audits, by designers, calls for a better understanding of the field of business as well as high expertise in design. Similarly we are seeing the businesses that respond to the Taskforce initiatives, recognising the cultural capital relative to the field of design as important to support design development in their field, compared with the reliance on ‘do-it-yourself’ methods of the past which were regarded as a preferred option to seeking the cultural capital that designers could bring to the business field. This change in thinking is bringing about changing requirements for supplying knowledge in each field as the parameters of required knowledge are widened for each. Fundamental to this situation is the respect by those in each field for the contribution of external expertise to the other’s field. It calls into question how ‘business savvy’ (Taskforce, 2003, p.5) designers need to be to be able to contribute to design led business and how design savvy businesses need to be to build their businesses. If these two fields are to become more interdisciplinary, there is a need for changing epistemologies in each. To achieve this change requires wide ranging changes in thinking that go beyond the scope of the Taskforce initiatives.

**Government’s participation in promoting design in business.**

While Government funding of the Taskforce project involves committed funding for implementation of initiatives, it is possible that if there are changes in government, changes in policy may result that bring into question the continuation of the funding of these projects. Ideally, a sufficiently strong private sector funding stream is needed to ensure against this possibility. This will call for increasing support from the business sector where acceptance of the initiatives is presently not unanimous. A reversion to the neoliberal values expressed by business leaders like Roger Kerr of the Business Roundtable, who argue against Government partnerships with the business field (Ibbotson, 2005), could undermine the initiatives and gains so far. In the absence of Government led initiatives, this could effectively herald a return to reliance on the limited receptiveness of individual businesses to being design-led, a key to the poor performance that the new initiatives have been set up to address.

The Government has emphasised the importance of partnership in the Taskforce project stating that ‘it will succeed only if it is owned and invested in equally by the design profession, business and Government’ (Taskforce, 2003 p.11). The partnership is primarily shared by representatives from each party. To develop this tripartite grouping referred to by Government, beyond representation to widespread involvement, by participants in each field will be an essential objective if the fragility of the present project is to be replaced by fuller involvement from each party. The quality of that partnership will be fundamental to the Taskforce objectives and achievements. Nevertheless, given the scale and timeframe this is a remarkable achievement for both the design and business fields, and a reflection of the value of Government participation.

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DOCTORAL STUDIES CONCERNING CONTEMPORARY SOCIAL NEEDS: THE FLEXIBLE REUSE OF ABANDONED BUILDINGS AS A PH.D. RESEARCH AREA OF DESIGN

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Abstract

The aim of this paper is to discuss the practice of refunctionalization, considering the conversion of abandoned buildings to “residences” instead of demolition.

It is assumed that these abandoned “empty boxes” in the contemporary urban environment can be considered as part of the territorial capital, and it is suggested that this heritage should be socially and economically reintegrated through strategies of reuse.

The social and economic dynamics that can contribute to the reuse of these abandoned buildings are highlighted. Design plays a fundamental role in the refunctionalization process, responding to new social requirements.

From the perspective of new social dynamics and a regenerative economy, these “empty boxes” offer a great potential, and can be thought of as space generators with an undefined function: an ideal platform to receive uncertain social dynamics (Bauman, 2000). The continuous reinterpretation of these spaces, as opposed to demolition and construction activities, can be seen as an organic and sustainable process of adaptation.

To illustrate this phenomenon some emblematic experiences related to the practice of reuse are mentioned, e.g. Buenos Aires and Milan.

The analysis of these experiences provides a framework for reflecting on the practice itself, and for identifying new dynamics related to the use and reuse of space. The importance of the role of design in this context is emphasized, focusing on the humanization of empty spaces in a versatile and flexible way. Experiences of spontaneous reuse reflect contemporary everyday values. Design can connect these new social values in an interface between the user and the space.

Finally, the importance of the empty space as a neutral, totally changeable place is underlined. This condition must be considered in the briefing for interventions on abandoned spaces and in planning a generative architecture using mutable spaces.

This analysis is part of a Doctoral Design Research project that is being carried out at the Politecnico di Milano. It is assumed that the design approach can help to identify new ways of seeing “old platforms”, re-linking these “obsolete” assets to contemporary socio-economic needs. This means that design can be seen as a crucial element in sustaining a strategic dialogue between what exists and what can be, promoting a competitive and sustainable reactivation of local resources.

Introduction

Identifying different uses inside the contemporary city is a difficult, unclear process which involves contemporary research in a variety of fields.

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1 This work is part of a doctoral research that has been carried out at the Politecnico di Milano
The phenomenon of urban abandonment, which can be seen particularly in the industrial and office sectors, makes it difficult to identify the specific use of a territory.

In fact, the idea of abandonment was foreseen: in the 1990s, as a result of the continual introduction of electronic technology into different production processes, mainly in the industrial sector, the first separation between society and industry was observed.

According to Branzi (1999, p.166), “…post-industrial in the strongest sense of the word means that industry, accelerating all its automation processes, is separating from society, and exists in an independent channel, a specific and separate economy”.

Nowadays, to talk about the abandonment of the office and industrial sectors is to call for a new context which is continually changing; it means considering a world that builds itself around the new market dynamics, which is to say globalisation.

In this context, new technologies which allow different dynamics of work become important, with a network economy in an information society, a scenario that makes a new modernity possible.

According to Rifkin (2000), the new era involves great changes, replacing physical strength of buildings with mental and technological strength. For him, the industrial era was a historical moment in which gigantic machines were invented and built, and the idea of beauty was related to “weight and density”, with grandiosity synonymous with beauty. He underlines the enormous changes taking place: “In the new era, mind dominates materials. Lighter product, miniaturization, shrinking work spaces, just-in-time provisions, leasing and outsourcing are evidence of the outmodedness of a purely material view of the world”. (RIFKIN,2000, p.75)

The abandonment of the office and industrial sectors is seen as the result of a great variety of factors connected to new economic, political and technological dynamics which directly condition the use of territory (Gastaldo, 1989).

The crisis in the office and industrial sectors is also a result of obsolete organizational and production models. Big cities, mainly in technologically advanced countries, have great difficulties with the management of these empty spaces. This is confirmed by the continual migration in the industrial and service sectors from the North to the South and East, and the rise in outsourcing in the office sector.

Conventional logic views these boxes as a growing problem with no apparent solution, the hardware of “heavy modernity” (Bauman, 2000) ruled by a mechanical aesthetic and the Cartesian logic of mass production which is ingrained in their structures.

**Context of possible reuse**

These empty boxes within the urban fabric of big cities can be viewed in two possible ways: either as a profound discontinuity in the structure of the city or as the basis for an important renovation. *I.e.*, the same situation can be interpreted as a problem, or as an opportunity for the abandoned city to refunctionalize itself.

The possibility of reusing these empty boxes is highlighted particularly by the potential which architecture has shown throughout its history to adapt itself to different contexts and functions.
In the dynamics of a new modernity (Beck, 1992), the possible reuse of abandoned buildings means reconsidering empty spaces as a value, an ideal platform for the development of new scenarios which meet the social and economic demands of this new modernity.

For Zevi (1978), architecture is also the result of this relationship, a participating presence in the empty space – “the negation of the solid” as a definitive state - which requires a social perspective.

To consider the refunctionalization of these empty spaces is above all to be opposed to demolition, and to see the problem as a great opportunity for the renovation of empty spaces in the urban network via a sustainable solution.

In this context, Mumford (1961) underlines the fact that it is not possible to renovate the city by the continual substitution of old structures with new buildings. In his opinion, this continual substitution illustrates the obsolescence of urban development which relies exclusively on the equally obsolete ideological foundations of “mechanical progress”.

An important economic context is developing which is favourable to the reuse of these abandoned spaces. The phenomenon of abandonment has been a topic of much debate recently, and in this paper is emphasized not as a problem but as a great opportunity for an emerging economy on the rise, based on and sustained by the process of refunctionalization, as supported by Cunningham (2004), who underlines: “the restoration of our natural and built environments has become the greatest business frontier of the twenty-first century” (CUNNINGHAM, 2002, p.289).

Other studies have also contributed significantly to the hypothesis of reusing these abandoned boxes, in line with current social dynamics.

According to Beguinot (1999), our cities are “city-networks”, connected on a planetary scale, in which the physical relationship with the urban fabric is often detached from the “network” itself. The network is built and nurtured by the new “species”, the homo tecnologicus, as described by Longo (2001). The author considers that society is in a perfect symbiosis with technology, the result of which manifests itself in the formation of a “global brain”. This “symbiont” has been dealt with by scholars of transversal subjects: Ken Friedman, Giuseppe Longo, Guido Martinotti, Dematteis and others.

This network, which Friedman (1996) calls “Virtual Cities”\(^2\) is something that overlaps the physical space of the cities. In this context, the hardware of “heavy modernity” (BAUMAN, 2000) is part of these disconnected points between the urban fabric and the global network.

Based on the concept of “smart connection”, Beguinot (1998) considers that architecture can adapt itself and interconnect with the global network. In this way, the “city’s hardware” could be included in the “smart connection”, and the result would certainly help to re-qualify and revive the urban environment, improving the quality of city life.

Regenerating\(^3\) these spaces might be considered an engine for urban development (Dematteis, 1999), as well as an opportunity to conceive a new and flexible architecture of the city – a

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\(^2\) To Ken Friedman (1996), the virtual cities will, in most important ways, serve physical cities.

\(^3\) According to the Roberts’ definition (2000, p.17), “urban regeneration is a comprehensive and integrated vision and action which leads to the resolution of urban problems and which seeks to bring about a lasting improvement in the economic, physical, social and environmental condition of an area that has been subject to change”
“non-material architecture”. The empty space, permeable in all directions, is an indispensable element of the “wired city” (Beguinot, 1999).

Connecting these boxes (containing empty spaces) to the network also means integrating new sociological dynamics of accommodation. It doesn’t refer to old dynamics⁴ that characterized modernity, but instead the integration of the new social grammar of the new modernity. According to Bauman (2000), in a society which is experiencing great mobility, and in which uncertainty is a constant element, “not much can be won with long-term considerations.” If solid modernity considered perpetual duration as the ideal, “fluid” modernity does not consider the function of perpetual duration. “The short term has replaced the long term and made instantaneity its ultimate ideal”. (Bauman, 2000, p.145)

The “refunctionalization” of these spaces according to the current social and technological scenario might also be an opportunity for a natural and steady upgrade of the city itself.

Changing uses in a flexible way

The reality of the abandoned city (and its potential use value), could be connected to the remarkable work of Anselm Kiefer⁵ - “The Seven Heavenly Place” - an image of the city through abandoned areas. Kiefer (2004) exhibited a sculpture representing “abandonment” in the abandoned Breda factory. The meaning of the sculpture is reinforced by its location in an abandoned building. Metaphorically, we can assume that the “sculpture of the abandonment” represents reality. It provokes connections (the feeling of “abandonment” projected on to the visitor) and being itself evidence (of the phenomenon itself), contributes to make society aware of the value of the abandoned city. Some images of this experience can be seen in Figure 1.

![Image](image_url)

FIGURE 1. “The Seven Heavenly Place”.

Other examples illustrate how these abandoned buildings are currently being refuctionalized and integrated into the ‘residential’ sector.

The experiences reinforce the importance of the design process to connect the “new” social grammar represented by Bauman (1999), the importance of the new economy (restoration

⁴ According to Bauman’s discussion of modernity (2000, p.33), “human activities were destined to be obedient, mechanically executed and without mental faculties being used, excluding any spontaneity or individual initiatives”.

⁵ Kiefer’s experience represents as an important connection to the contemporary city, with its bent for relating directly and deeply to different contexts; according to Sozzani (apud Kiefer, 2004), it represents a precious interplay of archeology and Modernity, signs and languages, shapes and volumes – “Anselm Kiefer’s work seemed to me supremely consonant with the vastness and intensity of a similar exhibition space.”

⁶ The Breda factory is industrial building abandoned, of monumental dimensions. This is a space that has been host same ephemeral cultural activities. According to Sozzani (apud Kiefer, 2004), it is an ideal space all set for use, simply awaiting a sign, a gesture, an aesthetic concept perfect in its many immense angles and implications, light and shadows: H.B (Hangar Bicocca)
economy, by Cunningham, 2002) and the continuous reinterpretation inside these empty boxes.

The purpose here is not to give an exhaustive and individual picture of both these experiences; however, some common aspects are worth mentioning. Both examples occurred in different contexts and at different times. The first one, the Darwin Loft, is situated in the Palermo quarter of Buenos Aires. The project was developed in the 1970s by the architect Giessio. This loft is the result of the refuctionalization of a famous old cotton factory, and was initially planned for residential use.

Some examples of this reintegration of spaces into the new dwelling can be seen in Figure 2.

![FIGURE 2. Darwin Factory, Palermo quarter, Buenos Aires](image1)

Another experience in the same sector can be seen in the Richard-Ginori ceramics factory in Milan. The refuctionalization process is not finished yet, but the partial result reflects scenarios of new lifestyles which are considered out of the ordinary, as can be seen in Figure 3.

![FIGURE 3. Richard-Ginori factory, Milan](image2)

Although each case emerged in a different context, common aspects can be noted:

a) they are ideal platforms for new lifestyles, considered unusual in relation to standard interventions.

b) the external appearance and configuration cannot be linearly interpreted by an external observer (it is an old industrial building), i.e. the internal use of the empty space is no longer foreseeable (it looks like an old industrial building, but actually it is an empty space in continual reinterpretation into different functions).

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7 Richard Ginori was an important ceramics factory which was considered an important point of reference for the quality of its design. This renowned industrial ceramic sector was founded in 1923, and its art director was Gio Ponti.
It is important to emphasize the common aim pursued by both projects. Both blueprints represent empty boxes intended for a well-defined use (residential). In spite of this, an undefined and impermanent use is noted, meaning that the user is an active player who reinterprets the space according to his changeable needs and desires. This nebulous use reflects the uncertain scenarios of different sectors. The different uses are constantly replaced by these experiences, and the practice of heavy rotation of use can be observed.

Thus, we can understand an intelligent connection, reminiscent of Beguinot’s concept (1998): these empty boxes can \textit{(inter)}connect across different uses and sectors, and therefore can resist new and continuous changes.

It is important to note that the continuous change in using the empty space is not related to the physical world (hardware). Flexibility and elasticity become possible because of the relationships (software) between objects and users that dynamically configure the use of the space. Architectural intervention is limited to the structure of the box. Inside, the “owner of the project” is the user.

Unquestionably, Design contributes to sustain multiple interpretations of space by supporting the development of well-adapted interfaces. The idea of open and interactive projects, meaning an “unfinished game” to be fulfilled by different users, is the crucial point sustained in this work. It follows an organic project briefing. These experiences show clearly that nowadays the only certainty is uncertainty and the only constant is change, as corroborated by authors such as Drucker (1969) and Senge (1994).

According to Rastogi (1999), “rapid, relentless change in products, markets, technologies, business structures, and competitive areas is the new reality confronting companies and managers across the world”. This uncertainty can be observed through the process of reuse of buildings.

These experiences reinforce the importance of considering the reuse of empty boxes carefully. Planning an organic project means promoting the system’s capability to give different answers to questions governed by social uncertainty (Bauman, 1999). Design must consider resilient organizations, in which life’s shapes are fluid, and flexibility is taken as a constant of the system (Manzini, 2004).

\textbf{Reflections on design practice}

The assumption that the reuse of empty abandoned spaces could represent a sustainable and highly valuable way to update the urban fabric is supported by systems of social, economical and technological relationships. As stated by Beguinot (1999), \textit{“a concept of change in architectural space is necessary, to bring about a new design methodology by which a new, possibly ‘intelligent, architecture, can be produced”}. A space that can be continuously adapted is extremely welcome.

It is important to consider the Design approach in this context. The considerations presented above lead to a set of questions related to the Design role in the refunncionalization process of abandoned buildings towards to flexible metropolis.

\begin{itemize}
  \item What is the Design role in the relationship between the user and the space that experiences refunncionalization?
  \item If the refunncionalization process doesn’t present a definitive plan (as happened with the old modernity), what are the ways to get a project to be changed continually?
\end{itemize}
To conclude, how could the organic briefing sustain a desired “imperfect”, incomplete project which is to be continually fulfilled through different users and by different sectors?

There are no simple and direct answers for these questions. However, the questions outlined can contribute to the comprehension of the refunctionalization process, signaling some directions to be pursued. The importance of research to sustain the refunctionalization process of the abandoned “capital” is reinforced.

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