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## **Design Compass - improving interdisciplinary communication on design**

Stokholm, Marianne Denise J.

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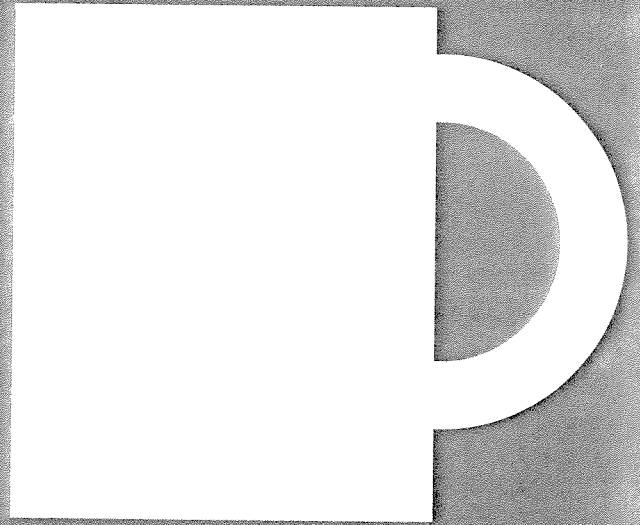
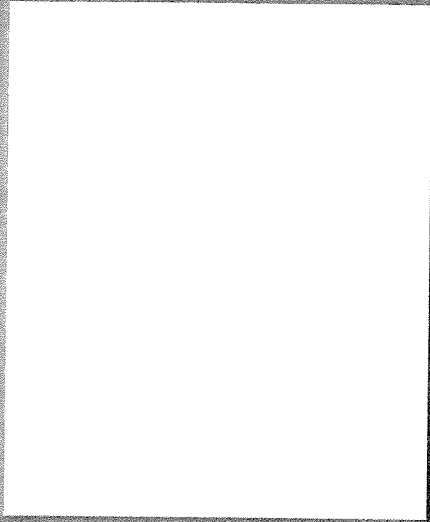
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# Design Compass

- improving interdisciplinary  
communication in design



Design is on the agenda worldwide. More than ever there is a need for common ground wherever design is discussed and practiced across professional borders. The author – a professor in design with a long career in industrial design practice – presents a tool to improve communication on design in general and cooperation on design in particular. The name of the tool is “Design Compass”.

By Marianne Stokholm

**Missing link**

Two persons are looking at a cup from different angles and totally disagree about what they see. One sees a mug without a handle; the other one sees a cup with a handle. The diverse perceptions result in different knowledge and leave the two without shared information about the totality. An identical image is missing.

This tangible example is used by psychologists to explain one of the reasons why negotiations reach a deadlock, and cooperation is obstructed. The phenomenon is common and widespread, also within design. Without common ground further communication is disrupted concerning the key question of what design is, and how it can be used to improve life.

**Communication problems**

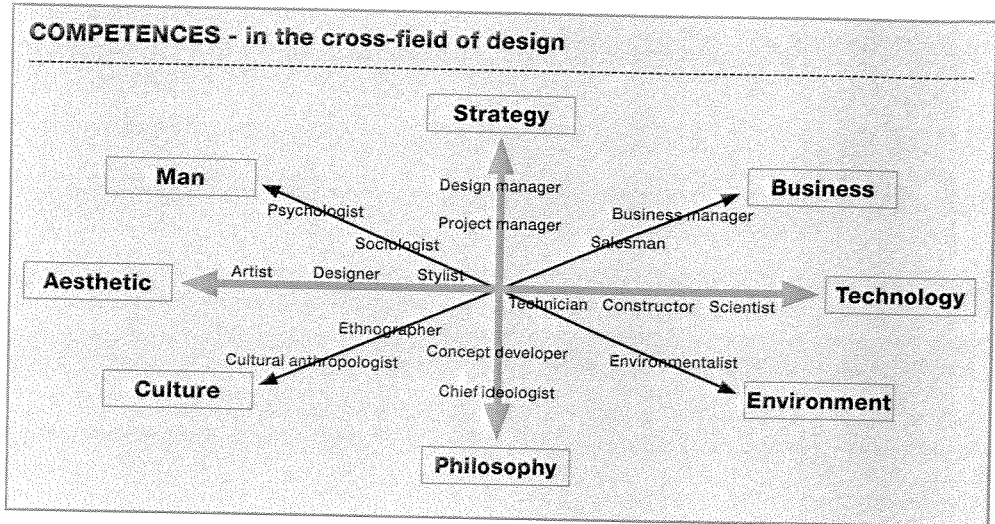
Within design the perspectives are represented by varied professional knowledge and understanding of qualities based on different education cultures. Whereas the source of engineering is technical natural science, the source of design is art and humanity. Some might find that business schools are from Mars, and design schools from Venus.

Through separate educations the partners in design gain a professional as well as a personal self-understanding, deeply rooted in tradition and cultures within the specific professions. Each school has its own vocabulary and internal ways of communicating which are not understood by outsiders. These structures create a situation determined by territoriality.

Ignorance about other professions leaves plenty of room for myth and prejudices between distinct professional groups, which results in a reduced ability to cooperate and share knowledge.

Furthermore, the partners are often not aware of the particulars in their viewpoint or the lack of shared knowledge. Even if a common interest in design is present the factors mentioned above will obstruct further communication.

Anyone who has been involved in interdisciplinary design work will have experienced misunderstandings. Not only on specific topics but also on a general level concerning the meaning and purpose of design. In the worst case, the communication focus may shift from topical issues to personal attacks due to fear and insecurity.



**In need of common ground**

Moreover, design is understood as both a business parameter and a powerful tool for improving culture and quality of life. Perceptions have shifted, and design is no longer seen as an add-on, but as an integrated function, and it now tends to be used as a general concept for knowledge and value management.

As design is becoming both more complex and more universal, additional professions are going to be involved in the design process. The interactive nature of design is also becoming more evident – design is seen as teamwork rather than a one-man show.

In order to unleash the full potential of design, there is a need to create a unifying platform for design as a field rather than a profession, to link the different professions together and improve their mutual interaction. This situation requires a simple model of design describing its elements, structure and principles of interaction that can be used for a variety of purposes by different professions involved in design.

**Development of a model**

After many years of working with industrial design practice and the development of new cross-disciplinary competence profiles, I have experienced a distinct need to qualify communication and make the integration of different design parameters operational to a group. Challenged by individuals from other professions on the issue of design, I worked out a model of integrated design as of a contextual cross-field.

The model was developed over a number of years while I interacted with people from other

**DESIGN – from addition to integration**

**DESIGN**

- Profession
- Designer
- Artefacts
- Form
- Focus on the product
- Appearance
- Functionality
- Fulfill demands

**INTEGRATED DESIGN**

- Cross-field
- Interdisciplinary team
- Systems
- Transformation
- Focus on the process
- Storytelling
- Interactivity
- Improve life quality

professions on issues of design quality, design competences, design education and design research. It was developed in reciprocal interactions between drafts, refinement and practical applications of the model in indifferent contexts and situations by the author and others.

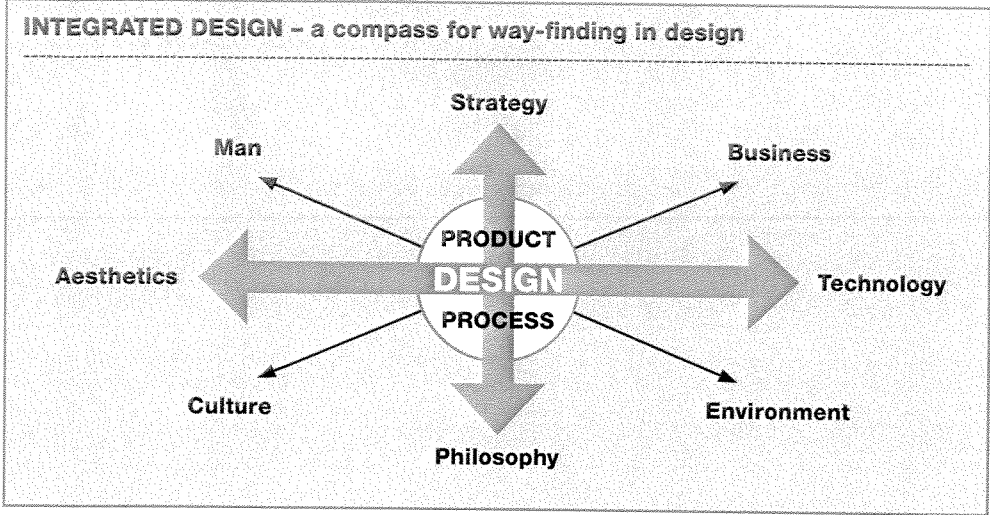
The model is based upon and in line with historical and modern models like:

- Greek philosopher Aristotle's definition of man-made things as the interaction between Form-Matter and Source-Purpose
- Roman architect Vitruvius' definition of good design as including Utility (Utilitas), Beauty (Venustas) and Strength (Firmitas)
- American design consultancy IDEO's definition of design as including Technology Factors, Human Factors and Business Factors

**A model of integrated design**

The model describes design as a contextual cross-field and uses the system concept as a metaphor for and an approach to design, where





**INTEGRATED DESIGN - a contextual cross-field**

| 8 CONTEXTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4 DUALISTIC INTERACTION                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| These are the sources of products & process                                                                                                                                                                                                                                                                                                                                                                                                                                 | This is where products are created and exists                                                                                                                                                                                                                                                                                                                                                       |
| <ol style="list-style-type: none"> <li><b>Aesthetics:</b> Form, symbol, message</li> <li><b>Technology:</b> Material, construction, production</li> <li><b>Philosophy:</b> Values, "The good life"</li> <li><b>Strategy:</b> Plan of action</li> <li><b>Man:</b> Physically, socially, mentally</li> <li><b>Environment:</b> Nature given and man made</li> <li><b>Culture:</b> Norms and habits</li> <li><b>Business:</b> Organisation for value transformation</li> </ol> | <ol style="list-style-type: none"> <li><b>Aesthetic-Technology</b><br/>Interaction field between form and matter</li> <li><b>Philosophy-Strategy</b><br/>Interaction field between values and actions</li> <li><b>Man-Environment</b><br/>Interaction field between man and world</li> <li><b>Culture-Business</b><br/>Interaction between cultural improvement and business development</li> </ol> |

transformation takes place as a simultaneous process of aspect interactions and value optimization.

The cross-field is structured by dualist contexts including:

- Aesthetic-Technology & Philosophy-Strategy (basic level)
- Man-Environment & Culture-Business (extended level)

The basic level can be seen as representing Aristotle's definition of the man-made. The extended level represents the performance of things during creation, production and use in the field between man and environment. As all industrial design objects and the activity of designing are rooted in and affect both culture and business these contexts are present on this level.

The axis of Form-Material or Aesthetic-Technology can be seen to represent the material product angle, whereas the axis of Source-Purpose or Philosophy-Strategy represents the immaterial strategic angle on design.

In industrial design both angles are engaged, but with varying professional attention. Companies that understand the full potential of design will work from both angles and manage to integrate them well. Less experienced companies

- INTEGRATED DESIGN - according to 5 statements**
- Design as a **CONTEXTUAL CROSS-FIELD**
  - **SYSTEM** as metaphor for and approach to design
  - Understand design as **TRANSFORMATION PROCESSES**
  - Transformation through **INTERACTION & OPTIMIZATION**
  - Focus on **CONTEXT** and **VALUE MISSION**

might approach with product design as a separate activity. Companies with little or no experience in design might work with product development solely in the technological context due to their lack of experience with in the integration of the aesthetic context and the strategic angle.

The centre of the cross-field represents the performance (creation and existence) of both design product and process. The design process is characterised as a transformation process that includes simultaneous interaction and optimization.

Furthermore the model suggests the concept of system as a metaphor for and approach to design.

**Using the model of integrated design**  
The model of integrated design has been used as a communication tool in many interdisciplinary situations to create a common understanding in design and a clarification of the partner's different perspectives on and roles in design. The model has also been applied on topics concerning competence profiling, design education and design research.

In practical use the model of integrated design was named the "Design Compass" by the users as they found that it supported their "way-finding" in the complex field of design.

**Competence profiling**  
The first version was used by a group working on a new structure for an education system with the fashion and textile. The aim was to link competences within design, construction, production and trading in order to create an educational culture of interaction to secure the value chain in practice. The result was a new department structure, where the boundaries of traditional professions were restructured.<sup>1</sup>

One year later the compass was used by the initiators of a new cross-disciplinary education at Aalborg University that linked design and engineering. The aim was to develop a common perception of a new professional profile within architecture and design in traditionally separated professional cultures.<sup>2</sup>

Recently the compass has been used by a working group appointed by the Danish Ministry of Science, Technology and Innovation to propose new educational programmes within the culture and experience economy. The aim was to combine creative competences with business competences.<sup>3</sup>

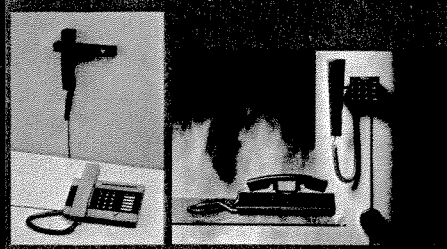
**Design education**  
On another level the design compass has been used in the development of an educational programme in industrial design engineering at Aalborg University.

This programme focuses on design as a process. It progresses along a line of increasing complexity of the design process. The new programme combines courses and project work. The latter is to be presented in both a product report and a process report that describe and evaluate the theories, models and methods used in the design process.

This educational program gradually adds more contexts and design methodologies. The progression is mapped on the compass to make the progression clear to both students and the interdisciplinary teaching team. In addition, different versions of the compass are used by the students for product analysis and as a tool to support the design process; the latter is especially important when students work on projects in groups.

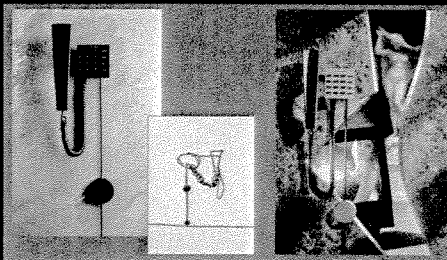
**TWO DESIGN CASES**

Company: Alcatel Kirk  
Design: Marianne Stokholm



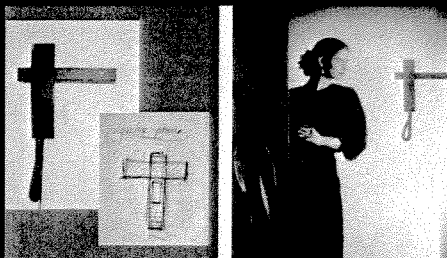
Left: Kirk PLUS and Kirk DELTA. Right: Kirk LOTUS

**Kirk LOTUS**



Kirk LOTUS – Left: Symbolic use capacity. Center: Symbolic interaction vision. Right: Symbolic interactions in advertisements.

**Kirk PLUS**



Kirk PLUS – Left: Symbolic use capacity. Center: Symbolic interaction vision. Right: Symbolic interactions in advertisements.

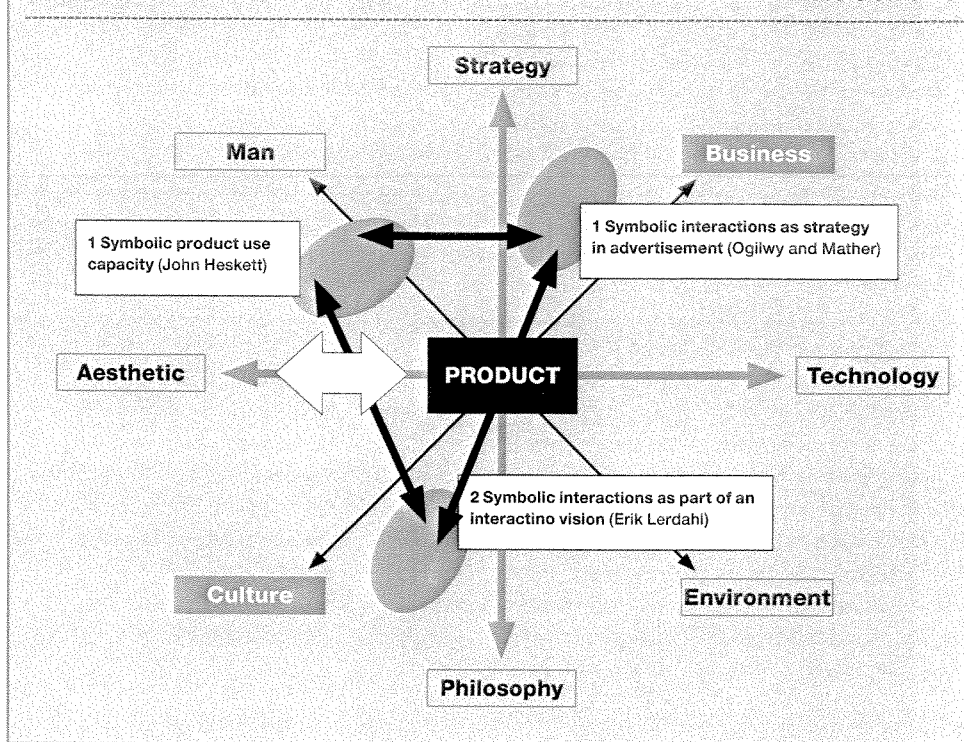
**Design research**

On a more advanced level the design compass has been used to investigate the symbolic aspect of a product as related to vision, use and advertisement in integrated design. In order to improve the capacity of the “Design Compass” and handle more detailed interactions two other models were integrated.

- Vision-based approach to design, Erik Lerdahl
- Use capacity of products in the new economy, John Heskett

The first model is concerned with the relation between value mission, interaction vision and product concept. The second describes the use capacity of a product, including utensil, symbolic and systemic capacities. Finally, these are combined with advertising concept on symbolic interaction by two ad agencies.

**MAPPING THEORIES ON SYMBOLIC INTERACTIONS ON THE DESIGN COMPASS**



The research included analysis of two similar design cases within the same company and with the author as the designer using the extended model. The analysis was concerned with product aesthetics in relation to business strategies. Specifically, the symbolic parameter as part of the interaction vision, the product use capacity and the advertising concept, the relations between the three and the resulting effect on the business success of the products.

Using the design compass as a tool for case analysis made the relations clear, and valuable knowledge could be picked out to support future product design.

**Perspectives**

The “Design Compass” seems to be a useful tool. When design matters are discussed, analysed or handled, it can help improve communications and understandings.

The potential of the model is explored on an on-going basis. When it is encountered by new users they grasp it, activate it and use it for specific purposes according to their current needs. As such, the compass acts as a tool for “way-finding” and a “game board” on design matters.

Future experiments with the compass will include the tracing of values and value interactions in a broader perspective between business and culture as a tool for turning values into products, services and experiences that improves life. ●

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**MARIANNE STOKHOLM**

- In 1983, Marianne Stokholm established the industrial design consultancy Stokholm/Zorea Design which has handled numerous design assignments over a period of twenty years and designed products, some of which are sold in millions and exhibited in design museums all over the world.
- In 1999, Marianne Stokholm was the initiator of The Danish Centre of Integrated Design, a collaborative venue for design research among designers, architects and engineers.
- Marianne Stokholm has been a professor in industrial design at Aalborg University since 2001.
- Marianne Stokholm has supervised education planning in schools of architecture, arts and crafts, engineering and vocational schools within fashion & textile, and furniture.
- In 2004, Marianne Stokholm was appointed by the Danish Ministry of Science, Technology and Innovation as a personal member of the working group “New Education in the Culture and Experience economy”

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