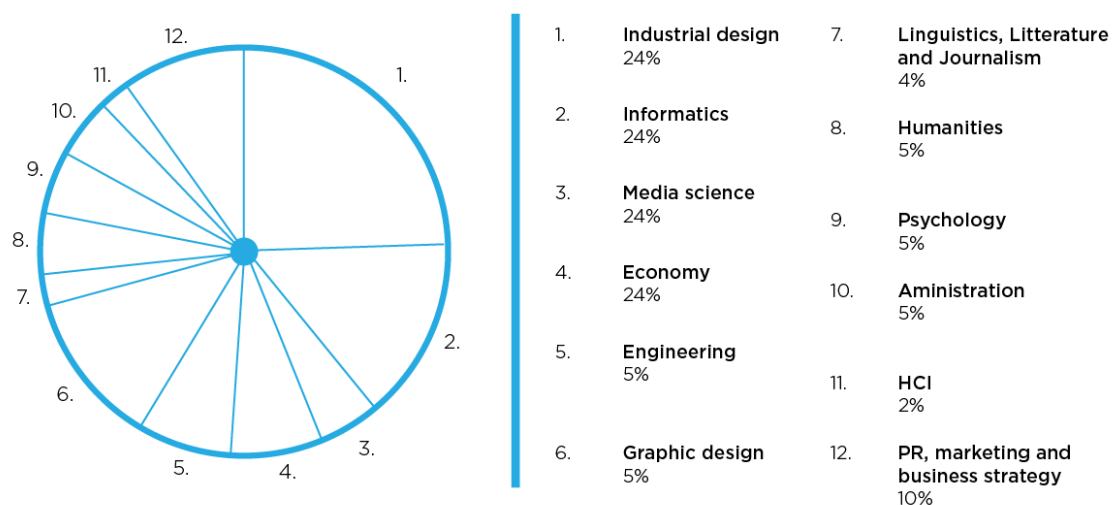


Professional applications of Systems Oriented Design (SOD): Developments in practice

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RDS3, 2014

Abstract

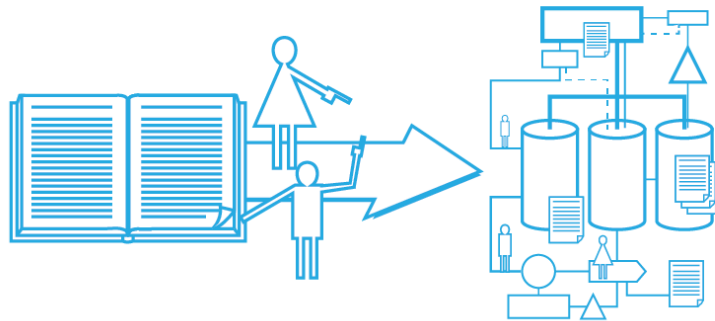
Halogen is one of the leading digital design consultancies in Norway, with expertise in design of critical systems and applications, websites, intranets, products and processes. One common denominator in all of Halogen's services and projects is a human-centered design approach aiming for holistic user experiences. The company has through recent years gone from being experts in digital user experience to become a strategic design expertise with focus on service design, design of critical systems, innovation and work processes. This has created a situation where projects are much more complex on all levels, such as strategic, tactic and operational. Halogen was established in year 2000, the company holds 52 employees from various backgrounds and have design studios based in Oslo, Stavanger (Norway) and Berlin (Germany).



Driven by the increasing complexity that confronts practicing designers in general prof. Birger Sevaldson and colleagues at the Oslo School of Architecture and Design has taken the initiative to develop SOD and a variety of related techniques, such as GIGA-mapping (Sevaldson, 2011). Halogen has established a partnership with AHO by applying the proven methods and techniques of Systems Oriented Design (SOD) into a practical and commercial context. Through the last couple of years Halogen has carried out more than 20 design projects using System Oriented Design as a central approach. It is our experience that SOD shows great promise.

Applying Systems Oriented Design in a commercial context has led us to develop new techniques and expand the usage of the method. This includes: 1. The use of predesigned GIGA-map layouts. 2. The development of four main GIGA-map typologies. 3. Commercial usage of the concept of establishing Creative spaces both at the company office and mirrored to our clients workplaces. 4. Developing techniques for selling Systems Oriented Design.

This paper outlines some of our first experiences, key takeaways and further developments so far through working with SOD.



SOD as a new approach in a commercial context

A viral practical tool and mind set at Halogen - Systems Oriented Design has proven to be a cost effective and practical tool for dealing with development in complex settings. It provides and delivers an organizational strategic alignment. At the same time it creates a basis for the development of products and services that connects and fits into larger contexts. The uptake of SOD as an approach spread out rapidly at Halogen. Over the last couple of years the turnover of SOD projects at Halogen has increased by 59 %. Furthermore the figures shows that SOD has become a substantial part of the company revenue from 11% in 2013 to 16 % in 2014.

Planning and estimation by learning - The SOD approach has through the last years gone through a steady process maturing at Halogen. Starting with exploratory in-house projects to better understand how the different internal competencies would be influenced through applying a systemic approach. Through internal courses, workshops and experiments the method was adapted to fit the existing company approach and culture. Initially this strained our time allocation and progress estimations. The GIGA-map is intended to question and explore boundaries and by doing so it naturally expose and challenge the project scope through questioning it. On a tight deadline and with at times limited funds it took some trial and error to achieve effective process management. We are still working on

this as an ongoing learning process. The approach was gradually applied to our work with clients as an iterative, pilot driven approach in order to limit risk. This is done by continuous evaluations of our work with teams of a diverse background within the company alongside with our clients and partners.

Informed high-level conversations - The systemic approach allowed us to better understand the unique systems where services we were hired to improve existed. It excels as a way of rapidly acquiring and building shared knowledge representation of a given topic. By inviting our clients even further into our design process and way of thinking, the SOD-approach allowed us to effectively include our customers in a heightened level of conversation.

Easily misunderstood - Design consultancies are notorious for developing new approaches and methods with confusing titles, so approaching our customers with a systemic design approach caused some initial misunderstanding. The term system, within a digital-design context often describes a software solution (i.e SAP). While within maritime industry the term systems is usually used by engineers (that work with Systems engineering).

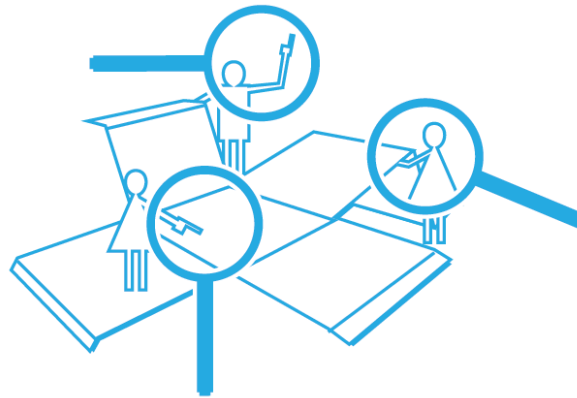
Balance the input, the confrontations and the outcome - Exposing a visual representation of the company organisation, a design challenge or a certain scenario can often results in a painful process. Doing so might upset power balances and expose larger challenges that exist outside the scope of a given clients mandate. Not to mention the fact that most of our clients hire us in order to actually bring forward a solution, not necessarily to expose more problems. We have in some cases forced ourselves to take decisions, prioritise and move forward, realising that what we know is “as good as it gets” at a particular stage thus yearning to explore more important aspects of a given issue.

Selling SOD

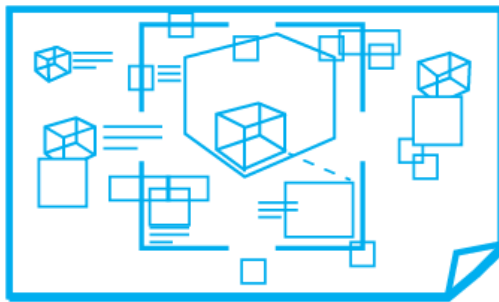
Introducing the SOD-approach to inexperienced clients is done gradually in order to build up confidence into embracing and coping with the complex situation at hand. At the same time it is crucial that clients get the idea quickly and experience the effect of holistic visualisation. The process starts by presenting simple arguments and example cases.

Followed by this we use to exemplify how the technique works. Usually we do this by creating a map that illustrates the scope of the project. By doing this we ensure that expectations and resources are aligned and we give the client a quick impression of how the basics of the GIGA-mapping technique works, during initial client meetings.

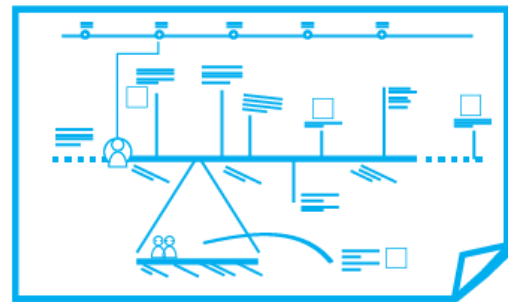
During the first meetings we usually share experience around difficulties, frustrations and resilience that we have met in previous projects or in some stages of an earlier SOD-process. This in order to create a sense of realism related to the task of co-creating a shared and illustrated systemic understanding to support decision-making.



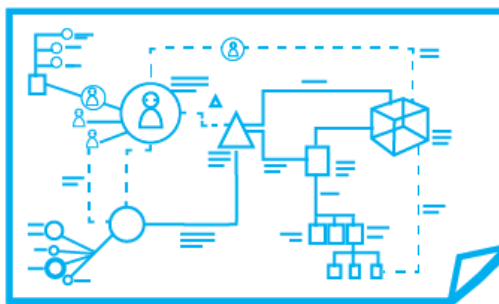
Applied typologies of pre designed GIGA-maps



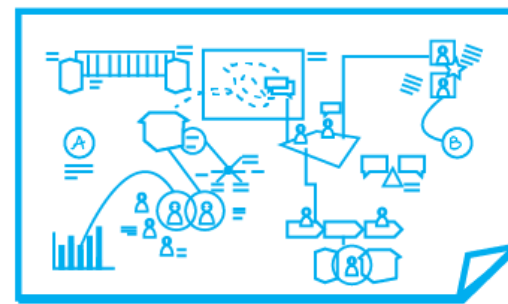
1. Contextual



2. Sequence



3. Relational



4. Exploratory

A matrix of different types of GIGA-maps and design activities has earlier been described by Sevaldson (2011). During project work we always strive to increase our effectively without removing the explorative and evolving nature of SOD. By looking back and analyzing our previous work we found four main types of recurring GIGA-mapp structures; **contextual, sequential, relational and**

exploratory. The notion of these four main types led us to pre-design open GIGA-maps layout structures to speed up the initial mapping process.

In some cases we pre-design all or some of the typical layouts as part of a preparation for a GIGA-mapping workshop. In other cases we choose the pre-designed type by engaging in an inquiry conversation before the workshops looking for hints towards the right mapping point of departure: A **Contextual** pre-designed structure is chosen when conversations with clients described their work in a special way, an example being frontline service providers office or a car workshop or a hospital building. As a contrast a **sequential** representation is used when clients describe chains of occurrences such as time based processes, journeys and continual scenarios. On some occasions there was no descriptions of space or sequence, but rather a conversation about networks where understanding relations and connections were expressed, leading towards the use of a **relational** type. The **exploratory** type of GIGA-maps are used when conversations appear on a more strategic level moving organisations or situations from A-B. For instance where a shared understanding of the AS IS state (A) and the desired state TO BE (B) were more or less known, but the path in between the two is unknown.

These pre-designed types of maps are produced after initial insight work done together with or for our clients. The recurring barrier when setting out to map complexity is to get the process going. It is easy to get stuck in discussion and framing mode for all too long. The stereotypes aided in overcoming this barrier and pulled the discussion to a more concrete level of abstraction.

A possible downside for using the pre-designed maps is when a map like this is perceived as the actual representation of the system (map). It can create a precedence that the participants experience as solid enough for the project to be built on. It might even enforce some cognitive limitations. Some participants may think that breaking a structure apart and rebuilding it will always feel as a loss or a step back. It is therefore very important that the project participants are informed that the same rules that apply any prototype apply to the maps. Iterations might come in the form of a complete restructure and as the mapping phase moves forward the stereotypes will change or merge together. Very rarely will one typology survive exposure to the complexity of the case at hand. Our experience shows that during the process of mapping, the pre-designed layout structures may very likely be changed iteratively or radically. No whole GIGA-map utilizes only one of the stereotype structures in the end, but they provide an effective starting point.

Applying a Rich Design Research Space

Sevaldson (2008) describes Rich Design Research Spaces as frameworks for collaboration, synthesis, and decision-making. As explained by Sevaldson, it is a tool for reflection and analysis, and for making research results explicit. Important to notice is that The Rich Research Space can only be learned by practicing it. It demands and focuses on design and research skills rather than prescriptive methodologies. Following the idea of pre-designed maps and noticing that our mapping process had become less dependent on our hands-on participation, we say another potential activity worth exploring. In our offices rich design research spaces would appear around the maps. (Birger) These

spaces have a great value for our work, providing us with and maintaining an overview when things gets messy and complex. But our clients did not have the capacity to spend enough time in these spaces to achieve the needed comfort to utilize this value.

In the same iterative pilot approach we started introducing mirrored rich and creative spaces in the offices of our clients. Allowing them to build confidence and involve their colleagues in the conversation. The initial projects have delivered encouraging results and inspire to further develop the practice. The systemic approach has opened doors to better involve not only our clients, but also partners from other practices. It has opened up the design process, made it easier to share and therefore involve.



Discussion

The use of predesigned GIGA-map layouts has become a natural part of our workflow with SOD projects. The four main GIGA-map typologies have emerged throughout our project experience. When reviewing a selection of projects from one client they will tend to lean towards one of the above mentioned typology. However we have no clear picture of in what extent the designers personal choice impact on the choice of types of a map. How they prefer to structure their workflow to best understand the client and the case at hand. This could be an area for further research.

Commercial usage of the concept of establishing creative design spaces is still work in progress, but shows signs of increasing importance. Design activities and processes are moving closer into our clients core structures. This creates an even greater need for stakeholder management. Keeping the right people involved, at the right level and at the right time, creates a basis for strong ownership to the process and the ideas it brings forward. Building a rich project presence in their workspace is one way to address these needs. Developing techniques for selling Systems Oriented Design will in a transitional phase remain important, since most clients are not aware that designers are able to contribute and participate in development processes on a systemic level. Building credibility is done through example more than convincing commercials.

More research is needed to understand the potential of moving past digital user experience design towards more advanced design activities. Developing a strategic design expertise with focus on service design, design of critical systems, alongside with systemic innovation and business process redesign is a challenging task. It challenges the way we perceive and practice design and calls for new methods and toolsets. The SOD mindset and GIGA-mapping shows great promise as such.

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