

# SYSTEM AND DESIGN

A Conversation between René Spitz  
and Peter Friedrich Stephan

**RS: Is system design a distinctive design discipline or do designers always think in systems?**

PFS: Defining a system to be designed is already design and, to this extent, design always thinks in terms of systems. Sensible system boundaries often appear to be obvious. However, in most cases, they are derived from a subconscious pre-knowledge that has to be revised by taking into account new knowledge arising during the design process. The dynamic combination of understanding and acting, of describing and intervening is a central part of design. A frequent change of perspective is crucial in this process in order to highlight as many facets as possible. The point is to look at systems from both the inside and the outside.

**Who defines the perspective of observation and thus the system's boundaries?**

System boundaries are essentially subjective, yet justifiable, definitions. For instance, the design task may be to design an office chair. In its narrowest definition, this chair is a technical system comprising a seat, a backrest and castors. That's how an engineer would describe it. A designer, however, also takes into account the user, considering the human body and its movements in terms of ergonomics, as well as psychological and social factors such as communication and representation. This also includes the chair's relationship to the table, to the lamp or the monitor. This system is again embedded in a context of employment contracts, hierarchies and communication rules, in what Lucius Burckhardt refers to as »invisible design«. Often more important than the objects themselves, these aspects are not necessarily seen as being part of the designer's task. Therefore, it is important for designers to be able to co-define the task instead of merely working to requirements that might exclude important opportunities for innovative design. This is the starting point for independent design research.

**Does design try to use what you have just described for developing a holistic perspective?**

The term »holistic perspective« may be a bit overused but it's going in the right direction: don't just focus on individual elements, but take into account the context and do not rule out anything. Buckminster Fuller's method was described as »exploring the world like an ancient child«.

In other words: look at everything with the unprejudiced mind of a child and ask the simplest questions. Fuller was self-educated and hence did not have the option of adopting the narrow perspective of an expert. Therefore, he was able to question why classic geometry had been developed from the shape of a cube and not from that of a sphere or a tetrahedron. Naivety in the best sense of the word, which can lead to radically new insight, like the »beginner's mind« in Zen.

**Designers tend to state that they work horizontally in relation to the established disciplines. But don't designers also follow systemic principles?**

Designers endeavour to see and design connections that individual expert groups do not see. Hence designers are specialists in generalisation. However, generalised perspectives can also be framed methodically. In this context, a central idea is »to lead from the future«. The point is to develop scenarios that, as »disruptive innovation«, are new and independent instead of merely proposing incremental improvements to an existing situation. This »moonshot thinking« defines big objectives in a far-ahead future and uses these as the basis from which to develop backwards for the present. Just like the moon landing really, that seemed to be a utopian goal but was eventually pulled off within the space of just a few years. Science fiction can be a great source of inspiration. One hundred, or even fifty, years ago, our current reality would have been considered utterly utopian. But the worlds that were created by writers and film makers already came quite close to what we have now. In the same way, »design fiction« starts with a leap in imagination and then develops this approach in a systematic manner.

**Are there any current examples of such an approach?**

Europe has become a little tired and has good reasons to view such an optimistic and revolutionary stance with scepticism. In the modern era, many grand visions have led to catastrophes and it is not unjustified to assume that such an approach would create a gateway for pushing techno-liberal ideas. However, the solution is not to think small because things look very different in the emergent economic powerhouses of the BRIC states (Brazil, Russia, India and China). The »Design for a Billion« conference was recently held in India: design for a billion people. These kinds of tasks pretty much describe the

scale on which design has to work and function. The point is to have a realistic attitude in relation to this kind of scale. Fuller's programme of an »Anticipatory Comprehensive Design Revolution« is as topical as ever.

### **And who is to pay for that?**

Joseph Beuys has already provided the answer to this question when he said: »Who, if not those that have the money, will bankroll the revolution?« But, of course, we are not only talking about a technological revolution, we are primarily talking about a revolution in consciousness. And, in this regard, it will be interesting to see how the intellectual and monied elites will respond. The people I'm referring to here are those who are not trapped by factual constraints but have worked to be in a position where they have freedom of choice. Will these privileged individuals continue to exclusively focus on profit or will they develop more far-reaching ideas as has, for example, Götz Werner, founder of the German drugstore chain dm, who advocates the introduction of an unconditional basic income. The entrepreneur Elon Musk wants to build a super fast transport tube in California. With »PayPal« and the »Tesla« electric car, he has already shown himself to be a source of good ideas. Inventive talent, willingness to take risks and entrepreneurial spirit tend to be attributes of individual people but those individuals stand on the shoulders of many. Therefore, the gigantic wealth owned by a few families of entrepreneurs must flow back into education and infrastructure to a greater degree than has been the case so far. Today, many people are smarter than the systems in which they have to work. It is therefore important to bring this knowledge and the will to participate onto the level of operations.

### **How can such a programme be implemented?**

The idea of the »post growth society« means abandoning the fetish of economic growth. What needs to grow, however, is awareness and methods of implementation. The notions of work and capital derive from the era of mechanisation and scarcity. Today, work has become something different and needs to be re-evaluated in economic terms. Taxes can also be turned into a donation for the common good instead of being a compulsory levy, as Peter Sloterdijk has suggested. Instead of an authoritarian state and party system having a monopoly on decision-making, the right of having your say could be extended. This is the political function of »participatory design«.

### **This will probably be mainly a question of education.**

Exactly. And in education, especially, we are currently experiencing a profound reorganisation. New organisational forms are emerging and the concept of knowledge is changing. There are those who regard knowledge as the creation of private assets that can be recapitalised and there are others for whom knowledge is a public good that can only be created collectively. On the one hand, knowledge is created through ever-finer differentiations and on the other hand through ever-broader references. The notions of form and pattern are central in this respect. That's why we coined the term »cognitive design« ten years ago. Cognitive design denotes research that studies the functions of design in generating orientation, meaning, preference and decision-making. This kind of research is urgently needed today, both in companies and for new knowledge platforms like »iversity«.

### **Today we live with all-embracing digital systems. How can we design them?**

A central concept in digital technologies is »resolution«. High-resolution photos show more detail and are thus of higher quality. But resolution is also related to dissolution and decomposition. In the digital world, we tend to find excessive detail, but it's detail that lacks context. Digital technologies and networks create a hypertrophy of detail and a loss of sense-making units. The signature feature of our time is the network consisting of nodes and connections. But at a higher resolution each node reveals further connections, resulting in incalculable options of combination and re-combination. However, only a few of these options make sense and we cannot possibly test them all. Hence, decisions for or against particular combinations will either be random or will follow factual constraints, or will respond to stimuli as do, for example, visual rhetorics and the social dynamics of what we refer to as »social media«. Cognitive design offers an alternative by visualising potential connections while simultaneously promoting specific preferences. In terms of systems, this is called re-entry: introducing differentiation into that which is differentiated.

**But isn't that the classic criticism levelled against design: that design is manipulative and disassociates people from their actual goals?**

Designers pass value judgements by introducing both differentiations and ordering systems, and, by so doing, designers promote new opportunities for action. Designers do not argue conceptually, they use manifestations and these manifestations are always superficial. What is underneath the surface is not depth but even more surfaces, like in an onion. Nietzsche has already described the Greek ideal as »superficiality out of profundity«. Design works on staging things and the success criterion is impact, the power to direct attention and preferences in a certain direction. Whether this is used in product advertising or in a campaign for some noble social goal is first of all irrelevant.

**Is there a »beyond« in staging things?**

In theatre, the spectator sees actors and sets, which he accepts as the reality of the play. Designers also create settings: they entertain, seduce, confuse or educate their audience. As a partner in this, they need the informed consumer who is no less a creator of culture than is the theatre-goer, as Wolfgang Ullrich has beautifully shown in his studies on consumer culture. Searching for a »beyond« of staging will not get us anywhere. Even final statements such as »truth« or »authenticity« have to be staged to be credible. There is no direct communication. Communication is always mediated by a third agent like language, signs or sounds, all of which contribute to creating meaning, and this is the domain of design.

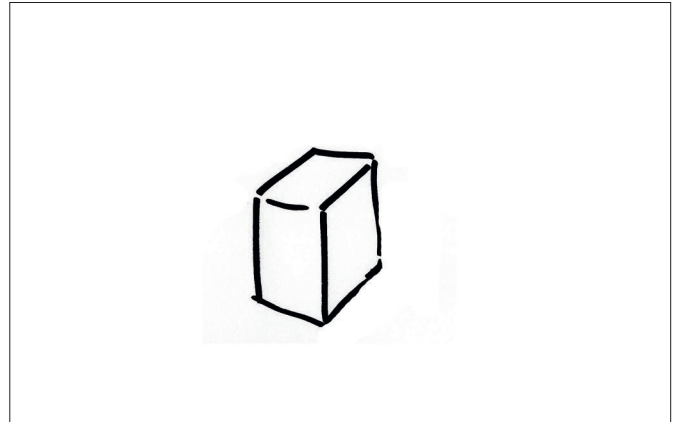


Fig. 1: The »product as such«, conceptualised as a mere fact, can only be conceived of as abstract but cannot be implemented.

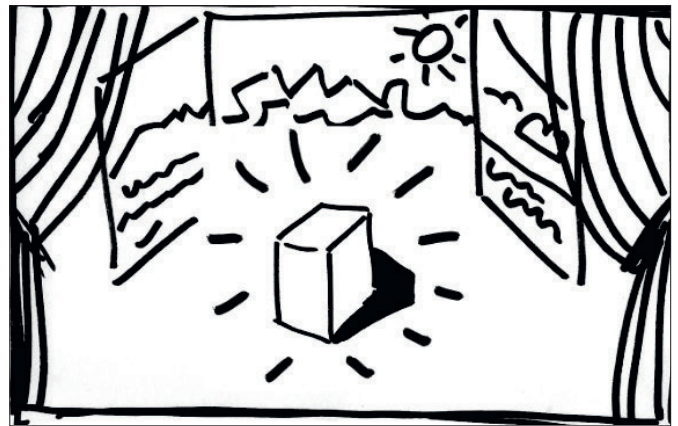


Fig. 2: Contextualisation guides appropriation and use. The product can only be understood by gestalt and outline.

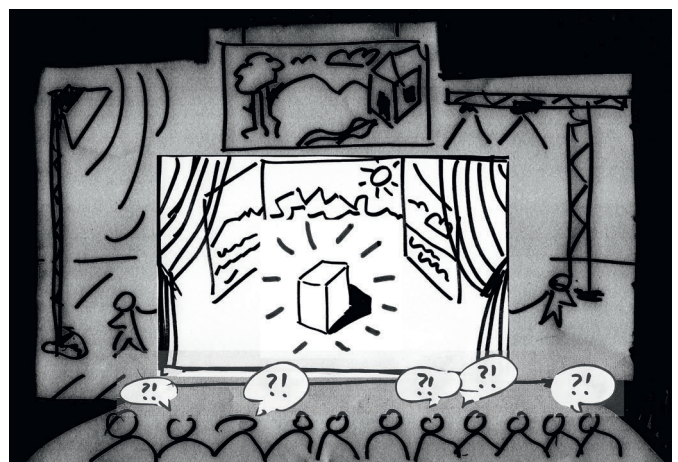


Fig. 3: The audience sees and discusses products in the context of their staging. Designers, as directors, remain in the background unless they appear as authors of products and become themselves part of the staging. (Illustrations: PFS)

**But isn't there a difference between designing superfluous and bad products and trying to meet quality criteria?**

It seems to make sense to divide design into two opposite functions: on the one hand, a conservative function that supports affirmation, consumerism and manipulation and, on the other hand, a progressive function that promotes criticism, participation and authenticity. The latter, »critical design«, works with interventions and provocation and seems to thus create an antipode to the market-conforming mainstream. The point is, however, that critical design also stages itself and hence sells itself as a label to, for instance, the academic public and in museums. Similarly, even the most provocative anti-art eventually serves the art business and hence, for design too, there is no outsider position from which to overturn the logic of publicity and the market.

**And what are the implications?**

Design is subject to market mechanisms that feed off the extraordinary. Magazines and trade exhibitions are looking for sensational one-off pieces, for signature furniture and signature lines. This, however, is typical of arts and crafts from which design should differentiate itself. Designers should not design for exceptional cases but for the normal case. What's important is good quality in everyday life, not in the design museum. The point is to enforce a minimum level of design quality, against ignorance, vanity, narrow-mindedness and greed. Supreme design ability is not creating an exceptional one-off masterpiece but, quite the contrary, creating good quality in everyday things. Therefore, we are working on providing basic courses in very different areas. This approach is the foundation for a »Low End Academy« to be established soon. This academy will focus on intercultural exchange related to the question: »How can we achieve more with less?« The overdeveloped western countries can learn a lot in this respect from other cultures.

**Isn't that a position we know from design history?**

Sure, this approach is in the best of traditions. Charles and Ray Eames have always emphasised the importance of connections, in a quite practical sense: How can I connect this metal part with that wooden part? Eventually, this is what defines good quality: connections must be thoroughly developed and thought through. Even in a high-rise building, good quality is in the detail, as is the case with Norman Foster's buildings. Designers can scale

qualities from the smallest to the largest and from the concrete to the abstract and vice versa. In other words: from the detail of a screw to the overall systemic concept, from a teaspoon to a city, as we used to say.

**Haven't the most essential products been finally designed? Especially since many years of development have gone into those concepts?**

Today, there are many good solutions for chairs, tables, lamps, tableware and cutlery. There isn't much left to improve, unless new materials create new conditions. Therefore, it is all the more astounding that these products still feature on the curricula of design schools. This should be prohibited for a few years. The products are often more perfect than the relationships they create.

**Haven't aesthetic standards also established themselves via the concept of »good form«?**

The concept of good form has to be changed into the requirement for creating good relationships. If that was done, it would hopefully have the same impact. The power of design has been generally acknowledged and is used extensively in business strategies. However, the power of design is not the power of designers. Jonathan Ive, head of design at Apple, is rightly lauded for his product design but have you ever heard him say anything about the relationships from which his products are generated or about the consequences created by his products? In large companies, these questions are dealt with by experts but there is no identifiable contribution by designers.

**Are there any criteria at all according to which a product like a smartphone can be designed today?**

Products don't end with their physicality: they are embedded in complex systems. Each smartphone, for instance, is connected to the coltan mines in the Congo. Another connection links them to working conditions in China. A systemic design approach will try to at least highlight these connections, or better even, to design them. The current iPhone features an app called »Health« that analyses each distance walked and each step climbed. Users may find this useful and use it in methods of »quantified self«. One health insurance company is already offering a special rate for those who transmit these data. A service is offered, but the price is surveillance and control. If you don't want that, you will find that the app cannot be deleted. That's clearly going too far and for me, this is

a reason why I would not want such a smartphone and would rather look for alternatives. The same is true for cars and buildings. Telekom's claim used in adverts for smart home technology perfectly drives home the point: »Your home in your hand at all times«. Well, yes, in the hand of large corporations!

### **What can designers do in this situation?**

Designers still predominantly design beautiful devices and interfaces instead of opting for a systemic approach and understanding the design of safety and privacy as the most urgent design tasks. In Italian, there is the term »habitat«, meaning »that in which I live«. The concept of home implies trust, safety, privacy and self-determination. Today, designers face the challenge of creating a »habitat« that will support these values from both physical and media components. In the 1960s, the design group Superstudio had already realised that we would live in a matrix. Using drawings and collage, they had already posed the crucial questions. The UK-based archigram group featured the same subjects in their work from that time.

There is no reason why aesthetic design should not be combined with ethical judgement. However, »habitat« is also related to »habit« and it seems that concepts like privacy are undergoing a change in meaning and will hence mean something different to future generations than to those who grew up before the digital age.

### **How can designers tackle such comprehensive tasks?**

Designers are specialists in making things visible and the visualisation of data traces can be a good start. This subject has already been treated at the Cologne Academy of Media Arts in 1997 and the work can still be accessed at [www.kontrollorgan.de](http://www.kontrollorgan.de). Furthermore, the tasks' complexity should motivate designers to create intelligent alliances with computer experts, engineers, anthropologists, sociologists and start-ups. There are many politically up-to-speed initiatives, partly funded by foundations, that develop alternative forms of digital culture. Simultaneously, new organisational forms of knowledge transfer are tested in fablabs, coworking spaces or at conferences like »retune« and »knowable«.

### **What is the position of design in relation to questions of general technology criticism?**

Technology is too powerful to leave it to engineers and philosophers of technology. Designers claim to design technology. There was once a slogan against the danger of »Big Brother«: »The computer for the rest of us.« Ironically, its creator, Apple, is today itself one of the dangerous giants. But there are initiatives developing alternative computers like the Raspberry Pi and networks for critical users like Diaspora. Designers should collaborate to support these alternatives instead of only serving established players. This, too, is a subject for independent design research.

### **Can such a design be human-centred?**

Human-centred design is a nice but unfortunately sentimental idea, a sop. Complex socio-technical systems are developing towards forms where the human being is no longer the focus and can no longer be the focus because humans are a potential source of interference. But the power of these systems lies exactly in the fact that there isn't anything else at the centre that could be critically questioned, or at least be addressed, because power essentially means being unreachable. I am only human-centred when I log out of the networks and am offline.

### **But aren't there objective human needs that should be focused on?**

The scale of needs is open towards the top and the bottom. What is of central importance to some, goes totally unnoticed by others. You can't regulate that in a normative way. Nor can it be about playing so-called »human« criteria off against technical ones. Technology belongs to humans, it's one of our qualities. However, technological procedures and devices are both beyond and below any human scale. Hence, with technology, we carry a monster within us that must be designed. And the criteria of such a design must become the subject of a debate. We have debates about nuclear power and genetic engineering but, so far, designers haven't participated in these debates. Small wonder then that in the public mind designers are being underestimated.

**It has been said we live in the »Anthropocene«, an age where humans effect the crucial transformations. What does that mean for design?**

The enormous impact of technology and science has led to a situation where the world can – and must – be designed, from the smallest to the largest scale. All areas of expertise involved in this could be termed design in the sense of Herbert Simon's »Sciences of the Artificial«. It seems to me that areas such as molecular biology, nano technology and computer science are closer to these tasks than traditional design disciplines. Hence, the kind of design necessary in the future will probably not come from today's designers. They still think far too much in terms of arts and crafts. In the digital realm, this might still seem current but, in biology and nano technology, there are already totally new dimensions to be designed. They go beyond signs and symbols and are directly operative.

**Can anybody be a designer?**

Designing is a fundamental ability, which each of us can discover and develop. Professional refinement, however, means developing a repertoire of methods, to consider more than just personal ability and interest. Design processes often require managing different groups of participants, which, in turn, requires a meta design of debates and processes. In this sense, Bruno Latour has established a project that maps controversies. Controversies, however, are based on concerns, on issues that are important to people. The reasons for those concerns are often irrational and not understood, but this makes them all the more powerful, for example: tradition, nationalism, honour, religion and erotic encounters.

**Didn't design, as a modern discipline, want to leave all this behind?**

It's not enough to brush aside these driving forces with a gesture of modern enlightenment. This only leaves a vacuum, and the dark ghosts of the past will create new chaos. Future design should instead strive to understand both the reasons for and the construction of concerns. How can we think about the ideas and feelings related to nature, religion, trust, health, family, tradition and so on with a view to the future? Great design tasks, all of them!

**Finally, a look ahead please: What is the future of design?**

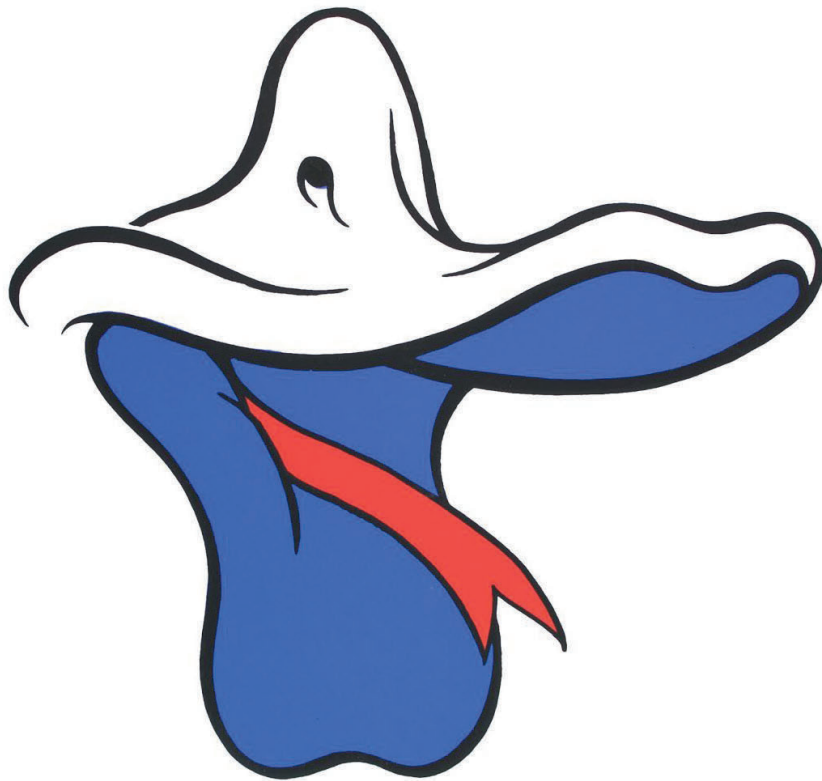
For design, the fields of application are growing, but its foundations are not defined clearly enough. Design must be more strongly underpinned by theory and it must develop its connections to other disciplines. Only as a strong discipline can design become an attractive partner in future research. Design uniquely combines analysis and synthesis, reflection and action. This methodological skill contradicts the cognitive ideal of the sciences, the aesthetical ideal of the arts and the pragmatic ideal of technology, as Gui Bonsiepe has stated. Design could, thus, become the centre of an education system that urgently needs to be reformed. The goal is to develop the potential to master the future as both an individual and societal ability.



SYSTEM DESIGN

Über 100 Jahre Chaos im Alltag / Over 100 Years of Chaos in Everyday Life

herausgegeben von / edited by Petra Hesse, René Spitz



ES GIBT EIN **GESELLSCHAFTSSYSTEM**  
DA HABEN DIE MENSCHEN EINEN SCHNABEL  
DAS SYSTEM HEISST **ENTENHAUSEN**



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Diese Publikation erscheint anlässlich der Ausstellung

**SYSTEM DESIGN. Über 100 Jahre Chaos im Alltag**

Museum für Angewandte Kunst Köln, 20. Januar – 07. Juni 2015

This publication accompanies the exhibition

**SYSTEM DESIGN. Over 100 Years of Chaos in Everyday Life**

Museum of Applied Arts Cologne, January 20 – June 7, 2015

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und die Autoren / and the authors

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Fotografie / Photography

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Gesamtherstellung / Production

Druckverlag Kettler, Bönen