

## DESIGNING SOCIAL SYSTEMS

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### Contents

1. The Design Imperative
  2. What is Social Systems Design?
    - 2.1. What Design Is
    - 2.2. What Design is Not
    - 2.3. Design Problems are Ill-defined
  3. Why do we Need Design Today?
    - 3.1 The New Realities
  4. When Should We Design?
    - 4.1. Changes within the System
    - 4.2. Changing the Whole System
  5. What is the Product of Design?
    - 5.1 Models: Definitions and Characterizations
    - 5.2 Models: Language and Utility
    - 5.3 Designers as Model Makers
  6. What is the Process of Design?
    - 6.1 The Process of Transcending
    - 6.2 Envisioning and Creating the Image of the Future System
    - 6.3 Designing the Systems
      - 6.3.1.The Definition of the System
      - 6.3.2.Functions
      - 6.3.3.The Organization that can Carry out the Functions
      - 6.3.4.Designing the Systemic Environment
    - 6.4.Presenting the Outcome of the Design
      - 6.4.1.The Systems/Environment Model
      - 6.4.2.The Functions/Structure Model
      - 6.4.3.The Process/Behavioral Model
  7. Who Should be the Designers?
    - 7.1. The First Generation Approach
    - 7.2. The Second Generation
    - 7.3. The Third Generation
  8. Building a Design Culture
  9. What Values Can Design Add to our Society?
  10. A Closing Thought
- Glossary  
Bibliography  
Biographical Sketch

## Summary

In the course of the second half of the twentieth century, the emergence, development, and continuing advancement of systems science have led to increasing insights into how to understand entities as wholes, comprised of interacting components, operating in and co-evolving with their environment. These insights and understanding have enabled us to learn how to work with living and changing systems, how to shape them, and how to design them purposefully. While the first phase of the “systems design age” was mostly the engineering “hard systems” type, which was inadequate (even disastrous) when applied to social systems, the emergence of soft-systems thinking and critical systems theory has enabled us to develop design approaches, models, methodologies, methods, and tools that are empowering us to engage in the design of the systems in which we live and work. Further, we are now developing design epistemology for the conscious, guided evolution of our future. In this paper I introduce a comprehensive characterization of what social systems design is, why we need it, when we should design, how design works, what it produces, who should be the designers of social systems, and what value design adds to our societies.

### 1. The Design Imperative

There is an increasing realization of the massive societal changes, transformations and new realities of the post-industrial knowledge era. These changes touch the lives of every person, family, community, and the society. Still, we enter the twenty-first century with organizations and institutions designed in the nineteenth. So improving or restructuring systems designed in the industrial machine age does not work for us any more. Only a fundamental change of perspectives and purposes and the redesign of our systems will satisfy the new realities and requirements of our era. Questions arise. What is our role in these changes? Are we only spectators? Are we destined to be victims of these changes? Are we at the mercy of experts who design social systems for us? Or: Is there a role for us in shaping our future and the future of the systems in which we live? Is there a way for us to give direction to the evolution of our systems, our communities, and our society? I address these questions by exploring social systems design as an approach by which we can individually and collectively “empower” ourselves to create a better future for ourselves, for our families, for the systems in which we live, for our communities, and for our society. But if we are serious about such “empowerment”, then we have to create opportunities so that we can learn what design is, how it works, and how it can be applied in the contexts of our lives and in our systems. Life is a journey. Making use of the power of design enables us to give direction to this journey and shape our destiny.

### 2. What is Social Systems Design?

This question is answered by first suggesting what design is, and what design is not. Then, the nature of design problem situations is discussed.

#### 2.1 What Design Is

In the most general sense, design is purposeful creating action, the building of a

relationship between us and our world. It is the conception and creation of novel phenomena, the realization of what should be. It is the manifestation of knowledge, beliefs, values, and aspirations, translated into a great variety of what we want to bring about and make part of our lives. The design of social systems is a future-creating, collective human activity. People in social systems engage in design in order to devise and implement systems, based on their vision of what those systems should be. Or they may redesign their system in order to realize their changing aspirations and the new realities and expectations of their environments. Design is a decision oriented, disciplined inquiry. It is a continuous process of searching for and finding design solutions. The process is carried out in iterative cycles. Designers set forth images of the desired future state, create alternative representations of that state, evaluate the alternatives, and select and describe/model the most promising alternatives. The focus of design is on constructing and reconstructing systems in specific contexts. The salient intellectual process is synthesis; its guiding orientation is expansionist; and its thrust is seeking, formulating, and fulfilling purpose. *Social systems design* is a relatively new intellectual technology. It emerged in the 1970s and 1980s as a manifestation of open systems thinking, the soft systems approach, and critical systems theory. It came on the scene just in time to deal with highly complex and dynamic social systems that are faced with the new realities: the massive changes and transformations of the information/knowledge age.

## 2.2 What Design is Not

We can further understand what social systems design is by knowing what it is not. Design is *not speculation* but knowledge- and competence-based collective disciplined inquiry. It is *not planning*. Planning moves out from the existing state, it produces (in a time-frame) a step-by-step progression of what to do. Design leaves behind the here and now, in order to create and model a new human activity system. Design is *not improvement* of the existing system. It transcends the existing system, envisions a new image, and—based on it—designs a new system. It is *not revising or restructuring* the current system. It is a process of re-visioning and transforming. Design is *not future predicting* but future creating. We are not designing *for* the future, we are *designing the future*. Design is *not problem-solving*. It is not problem focused but solution focused. Social systems design is *not engineering*. (Social engineering was attempted in the 1960s with disastrous results.) Engineering works out from given goals and specifications and proceeds in a “systematic” (not systemic) fashion, keeping logic and imagination—as well as problem and solution—apart by will and by external means. In design, setting goals and specifications emerges in the course of the design inquiry as a result of constant intuition and the emergence of value-based creative solution ideas.

## 2.3 Design Problems are Ill-defined

In well-defined problems, the initial conditions, the goals, and the necessary operations can be specified (as in engineering, for instance) But design situations are the kind in which the initial conditions, the goals, and the allowable operations cannot be extrapolated from the problem. Social problems, being inherently wicked, defy a definitive formulation of the problem. Design solutions are good or bad, not true or false, and have no ultimate test. Judgments vary depending on people’s interests, values,

and perspectives. Every design situation is unique and every design problem is a symptom of another problem situation, which—again—can be a symptom of yet another. Design problem situations are unbounded. Still, designers have to set boundaries, knowing that doing so may have unbounded and unintended consequences. As a designer, I feel that the genesis of wanting to take action and changing our world by design is not driven by problems. It is guided by our vision and by our ideal image of the future. It is fueled by our aspirations, desires, values, beliefs, hopes, and dreams. I feel that I am liberated from the “tyranny of problems” and that I am free to create (see *Soft Systems Methodology*).

### **3. Why do we Need Design Today?**

In an age when the speed and intensity of change increases exponentially, our ability to shape change, rather than be its victims or spectators of it, depends on our competence and willingness to guide the purposeful evolution of our systems, our communities, and our society. The method by which we can guide change is systems design. Collective design capability empowers us to exercise truly participative democracy and it enables us to take part in activities which can enrich the quality of our lives and add value to the systems in which we live. Today, we live in a rapidly changing world and have a growing awareness that most of our systems are “out of synch” with the new realities of the current era. Those who understand this and are willing to face these realities call for the rethinking and redesign of our systems. Once we understand the significance of these new realities and their implications for us individually and collectively, we will reaffirm that systems design is the only viable approach to working with and creating and recreating our systems in a changing world.

#### **3.1 The New Realities**

Around the middle of the twentieth century, a new stage emerged in societal evolution. It has many different names, such as the “post-industrial society”, the “post-business society”, or the “post-modern society”. The recurring label “post” indicates the transformation of our society into something very different from what it has been. But we are not sure yet what name to give to it. But we know for certain that this new stage of societal evolution has brought new thinking, new perspectives, new scientific orientation, and a new world view. It has brought about massive changes and discontinuities. The emerging changes are the “new realities.” It is of primary importance that we individually and collectively understand what these new realities are and grasp their implications for the design of our lives and the design of our systems. These new realities emerged in the wake of a major societal transformation from the industrial machine age to the post-industrial information/ knowledge age. This recent major shift is characterized by the centrality of knowledge, the creation of new intellectual technologies, the spread of the knowledge class, a massive change in the character of work, a focus on cooperative strategy, and the central role of systems science. These massive transformations have crucial implications for our all of us. In order to deal with these changes, we need to shift from a trial-and-error, piecemeal tinkering with our systems to their radical transformation by design. The biggest change is a shift from the industrial worker to the knowledge worker. Knowledge becomes the true capital of our age. The knowledge worker defines what to learn and how to learn it.

Furthermore, the dominant task is by no means confined to high technology or technology in general. In fact, social innovation, and its intellectual technology—social systems design—may be of greater importance and have much greater impact on life. In the knowledge age only organized and purposeful learning can convert information into knowledge, which then becomes the most important possession of both the individual and society. In concert with the massive changes in the more general societal features, new realities have emerged in our social organizations.

The newly-emerged realities and the societal and organizational characteristics of the current era call for the development of new thinking, new perspectives, new insight, and—based on these—the design of systems that will be in harmony with our transformed society. In times of accelerating and dynamic changes, when a new stage is unfolding in societal evolution, inquiry should not focus on the improvement of our existing systems. Such a focus limits perception to adjusting or modifying the old image in which our systems are still rooted. A design rooted in an outdated image is useless. We must break the old frame of thinking and re-frame it. We must transcend the boundaries of our existing system, explore change and renewal from the larger vistas of our transforming society, envision new images of our systems, create a new design based on the image, and then transform our systems by implementing the new design. Only purposeful design can close the ever widening gap between the new societal realities and our various social and societal systems.

#### **4. When Should We Design?**

Social systems are created for attaining purposes that are shared by those who are in the system. Activities in which people in a system engage are guided by those purposes. There are times when we introduce changes within the system in order to attain our stated purposes and there are times when we recognize that we need to formulate new purposes, purposes which are different from those existing, thus we need to design a new system in order to attain those new purposes.

##### **4.1 Changes within the System**

When we discover that there is a discrepancy between what our system actually attains and what we designated as the desired outcome, we realize that we need to make some changes either in the activities or change the way we carry out activities. The focus is changes within the system. Changes within the systems are driven by “negative feedback” and are accomplished by adjustment, modification, or improvement. These are means by which we “reduce deviations” from existing “norms.” Negative feedback reaffirms the outcome as originally stated, but it tells us that we need to bring about changes within the system in order to attain the outcome from which we deviated. This kind of feedback is the dominant operating process in relatively stable environments, when adjustments and piecemeal improvements in the existing state of the system could bring the system in line with slow and gradual changes in the environment. Tragically, this change mode dominates today, even in face of the massive societal changes and the new realities and transformations which all call for a new design and require the massive transformation of our social systems.

## 4.2 Changing the Whole System

But there are times when we have evidence that changes within the system would not suffice. We realize that our purposes are not viable anymore and we need to change them. We are becoming increasingly aware that our system is not synchronized with the environment in which it is embedded, or that it is “out-of-synch” with our desires and aspirations. We realize that we now need to change the whole system. We need a different system; we need to deviate from existing norms, we need to establish new norms. We need to design a new system.

In time of massive, accelerating, and dynamic changes that characterize the current societal scene, adjustments and changes within the system will not suffice. When a gap opens up between the evolution of the system and the evolution of its environment, internal, piecemeal adjustments can no longer keep the system “in-sync” with its environment. The whole system has to change in order to make it compatible with its changing environment or with the desire of people in the system. The feedback that guides this action is called: “positive feedback”. Through self-organization the system responds to positive feedback and co-evolves with its environment by transforming itself into a new state. The process by which this co-evolution and transformation comes about is systems design.

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### **Biographical Sketch**

**Bela H. Banathy** is Emeritus Professor of Systems science at the Saybrook Graduate School and Research Center and President of the International Systems Institute, a nonprofit public benefit research and educational organization. A Graduate of the Hungarian Royal Academy (1940), he has a masters degree from the San Jose State University (1963) and a doctorate from the University California Berkeley (1966). In the early 1940s he was teaching at the Hungarian Royal Academy and the late 1940s was head of the Collegium Hungaricum, serving refugee youths in Austria. With his family he immigrated to the USA in 1951. He taught at the Government's language program and in the 1960s was Dean of ten language departments. He joined the Far West R&D Laboratory in 1969, and served as Program Director, Senior Researcher, and Associate Laboratory Director; directing some fifty projects. He retired from the Laboratory in 1989. During the 1960s and 1970s, he was teaching at San Jose University and UC Berkeley in the areas of the systems and design sciences. In 1982 he joined the Saybrook Graduate School, a Ph.D. granting institution, where he established a program in the systems and design sciences. During the 1970s he served as Regional Chair of the Society of General Systems Research; in the 1980s he was Managing Director, President, and Chair of the Board of Trustees of the Society. Since the early 1980s he was on the Executive Committee of the International Federation of Systems Research; and in the 1990s served two terms as its President. He is a member of the General Evolutionary Research group. He has published over a hundred articles, research reports, and chapters; and seven books. Some of his books have been translated into other languages. He serves on the editorial boards of *Systems Research and Behavioral Science*, *Systems*, *World Futures*, and the *Journal of Applied Systems Studies*.