

# **Designing Information Design**

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## **Abstract**

By designing information design we arrive at a completely new approach to information. Within this new approach we are able to create new information formats, find new uses for the new media, give information new purposes, create new kinds of information and develop new methods for creating information. The Polyscopic Modeling methodology is proposed as a foundation on which the new approach to information can be developed.

**Keywords:** information design definition, information design methodology, social responsibility of information design, polyscopic modeling.

**Author's biography:** Dino Karabeg was born in Dubrovnik, Croatia, in 1954. Following a doctorate and a brief academic career in theoretical computer science in the United States, in 1992 he accepted an Associate Professor position at the University of Oslo. In 1993 his interest changed to basic issues in information and culture. Since then he has been developing a comprehensive system of techniques and results under the common name *information design by polyscopic modeling*.

# Designing Information Design

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## Introduction

Information is the theme of the day, so much so that we call our historical era the Information Age. However, the changes that the Information Age has brought us so far have largely been confined to information technology. I believe that the Information Age will truly begin only when we shift focus from information technology to information itself. It is obvious that the new information technology allows us to create new kinds of information, but we have only begun to anticipate what those new kinds of information are and what purposes they will serve. As I point out in this article, information has the capacity to profoundly change our lives and culture and to benefit us far more than it presently does. But before information can fulfill that promise, our very approach to information needs to change.

By designing information design we arrive at a distinctly new approach to information. Within this new approach we are not only able to create new information formats and find new uses for the new media, but also give information new purposes, create completely new kinds of information and develop new methods for creating information.

To distinguish the designed *information design* and other designed concepts from the traditional ones that have the same name, I write the designed concepts in italics.

In addition to this introduction and the conclusion the article has three sections. In the first, *information design* is defined. In the second, the motivation for this new approach to information is explained. In the third, it is shown how *information design* can be put into practice. That is done by outlining a general-purpose information design methodology called Polyscopic Modeling, which is proposed as a prototype of a designed informing (Karabeg 1999a, 2002b). When written in small letters, 'polyscopic modeling' refers to the practice that follows from that methodology.

In this article, polyscopic modeling is not only introduced but also applied. This is reflected in the use of an ideogram at the beginning of each section, which summarizes the main message of the section. Another characteristic application of polyscopic modeling are the concept definitions in which the meaning of the

concept is postulated or prescribed. In the article even basic concepts such as ‘design’ and ‘tradition’ are assigned meanings that are more precise and perhaps subtly different from the meanings the reader may ascribe to them. To understand the article it is necessary to interpret those concepts as they are defined.

The need for extending our ‘language’ or ‘notational systems’ has been voiced by several authors: Robert Horn pointed to the emergence of a visual language as the new language for global communication (Horn, 1998); Jeffrey Long showed how our notational systems limit what we are able to think and communicate (Long, 1999); Robert Logan showed that our notational systems have a critical impact on our social, economic and educational structures (Logan, 1999). In this article polyscopic modeling is introduced as an informing practice which allows for *designing* the language and other communication tools. The Polyscopic Modeling methodology is proposed as a foundation on which this practice can be developed.

## 1. *Design* of information

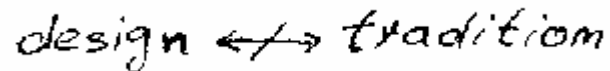
The image shows the words 'design' and 'tradition' written in a cursive, handwritten style. They are positioned on either side of a double-headed arrow, indicating a relationship or opposition between the two concepts.

Figure 1: The Design Is The Alternative To Tradition ideogram depicts *design* and *tradition* as alternative to each other.

The definition of *information design* which designates it as a new approach to information is surprisingly simple:

*INFORMATION DESIGN IS THE DESIGN OF INFORMATION.*

If this definition appears to be too simple to be saying anything, it is best to consider it as a riddle. The solution to the riddle is that the word *design* in it is also designed. (Here we already have an example that shows the power of the new approach. As we shall see next, this single act of concept design changes the meaning of our definition all the way from tautological to controversial.)

### 1.1 Designing design

*Design* is defined as “the alternative to *tradition*” (see Figure 1). This definition is explained as follows: Evolution and creation are the two ways in which any functional whole can originate. *Tradition* and *design* are respectively evolution and creation in culture. In a *tradition*, the culture as a whole and all its elements such as values, customs, language, objects, lifestyle and information formats evolve slowly

and spontaneously in a manner similar to the evolution of organisms and ecosystems. *Design*, on the other hand, is conscious creation.

Our definition of *design* does not imply that *design* is in conflict with the tradition. On the contrary, *design* and *tradition* are the two available ways of reaching the same goal, namely creating a reliable and sustainable culture. A *traditional culture* is reliable because everything in it has been tested and assimilated to everything else through many generations of use. A *designed* thing is reliable because it has been consciously examined and verified.

To be effective, *design* and *tradition* require very different thinking styles and attitudes. *Tradition* requires that we think and act within the limits of the traditional roles and patterns. *Design* requires holistic thinking and conscious responsibility for the whole. To design the headlights of an automobile, for example, one cannot just adopt some traditional light source or use a lamp that only looks good. Above all, the designer must secure that the headlights fulfill their function in the automobile, so that the automobile as a whole can function.

## **1.2 Beyond *traditional informing***

When *design* is understood as the alternative to *tradition*, *information design* must be understood as the alternative to *traditional informing*. Since practically all our information is produced within professions that evolve and function as traditions, *information design* is an alternative to practically all the informing we know.

It may come as a surprise that physics, journalism, philosophy, fiction writing and *all* other common ways of producing information taken together have an alternative. *Information design* is as different from *traditional informing* as *design* is different from *tradition*. In *traditional informing*, one learns one's trade (be it biology, journalism or poetry) from the tradesmen of the previous generation and continues to do, with incremental changes, what the trade requires. To *design* information, one would need to look at the culture, which is the whole within which information has the role, and ask "What purposes does information serve in our culture? How could it serve those purposes better? What new purposes could information fulfill? What should information be like in order to fulfill those purposes?"

## 2. *Modern culture* needs new informing



Figure 2. The Information Design Challenge ideogram depicts the *modern culture* as a bus and its *traditional informing* as the headlights of the bus, which are traditional candles.

The motivation for *information design* is explained with the help of the Information Design Challenge ideogram (see Figure 2), where *modern culture* is depicted as a bus and its *traditional informing* as the headlights of the bus, which are traditional candles. It is suggested that *modern culture* with *traditional informing* is incongruous and dysfunctional. Because of that we are on a hazardous journey, unable to use our powerful technology purposefully and safely. Fortunately, this situation can be changed by *designing* an informing that suits the culture. Informing can make the difference between the technologically advanced culture which wanders aimlessly and often destructively and a culture with vision and direction. Proper informing can change the culture in which the advancement of technology is a hazard into a culture in which technology is used safely and for our true benefit. The Information Design Challenge ideogram invites us to design such informing.

To justify the claim that our culture needs new informing we look at three very large changes that have developed during the past century: the culture change from *traditional* to *modern*, the epistemology change from *naïve* to *symbolic* and the information technology change from the printing press to the Internet and the multimedia. The result of those changes is that the information needs of our culture have changed drastically, and that the methodological and technological possibilities for responding to the new needs by *designing* information have become available. At the same time our *traditional* informing professions have largely remained as they were in the *traditional culture*, where they evolved according to the needs, the beliefs and the information technology of that culture.

## 2.1 Culture change

A growing part of the world population is no longer living in the *traditional cultures* of the ancestors but in the global, monolithic and technological *modern culture*. In a *traditional culture*, basic choices such as values, lifestyle, diet, clothes and social and family relationships are determined by the tradition. The *basic information* which orients the basic choices is *implicit* in the customs of the tradition.

The *traditional culture* had all that was needed for developing its *basic information* by spontaneous evolution: the obedience to the ways of the ancestors secured the inheritance, the competition with other cultures and with nature provided the selection mechanism, the slow rate of change made the process reliable and stable. That is, however, no longer the case in the *modern culture*. Our culture is changing far too fast to be tested and homogenized through many generations of use. We no longer believe in following the example of our grandfathers but in rational, 'free choice'. While the *traditional culture* determined people's choices, now our choices orient the evolution of our culture and the development of the technology. We need *explicit basic information* to be able to make choices *consciously* (with awareness of their consequences). Without such information, we can only base our choices on what *seems* pleasant at the moment.

The claim that such 'steering in the light of a candle' sets our culture on a hazardous ride without proper direction can easily be supported by evidence. During the late nineteen-seventies and nineteen-eighties a group of experts called "The Club of Rome" evaluated the global prospects regarding the environment and resources. Based on the group's findings, Erwin Laszlo, one of the group's members, concluded that a more highly evolved manner of making choices has become the condition for the survival of our species (Laszlo, 1994). Based on the results of an extensive field study, Weston Price reported that the civilized lifestyle causes physical degeneration (Price, 1989). Werner Kollath, a pioneer of scientific study of hygiene, presented experimental, theoretical and statistical evidence to show that our health and well-being have deteriorated in spite of the fact that our average lifespan has increased (Kollath, 1962).

In the *modern culture*, information must allow us to 'see far and wide', so that we can distinguish those choices that lead to a better condition from the ones that don't. There is no reason to believe that our *traditional informing*, which has evolved as it suited the needs of the *traditional culture*, can give us such vision.

Our language and notational systems have also originated through spontaneous evolution within the *traditional culture*. It is conceivable that in the *modern culture* even the most basic questions about the lifestyle, values, information and socio-economic power cannot be answered in such language. We may be stranded in a futile attempt to understand the critical issues of our time in terms of a dysfunctional language.

## 2.2 Epistemology change

When in the first half of the twentieth century the physicists realized that Newton's 'laws' were not an exact picture of reality but approximate models, it became clear that the replacement of the *naïve epistemology* by the *symbolic epistemology*, which will have profound cultural consequences, would have to follow (Heisenberg, 1962). The *naïve epistemology* is the belief that information equals reality, that our concepts correspond to objectively existing things in reality and that our informing, like a photographic camera, produces an exact and objective picture of reality. This epistemology still prevails in our culture. It is reflected, for example, in the belief that the factual truth, understood as correspondence with reality, is all that really matters about a piece of information, and that information can be evaluated by a single bit of information whose possible values are 'true' and 'false'. This belief underlies our logic and much of our ethics, education and legislation.

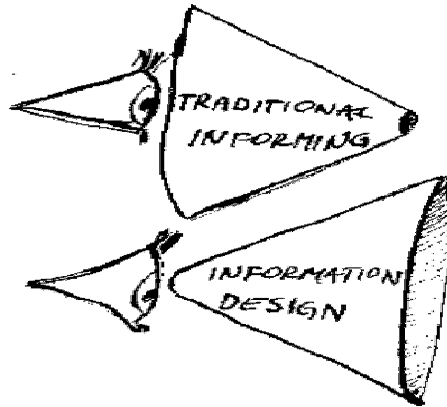
The *symbolic epistemology* recognizes that our symbols are our own product and the product of our culture. According to this epistemology, any fixed set of concepts, like the light of a candle, illuminates a certain fragment of reality and leaves the rest in the dark. The *symbolic epistemology* allows us and even compels us to *design* our symbols consciously, so that we can see more and communicate better.

## 2.3 Information technology change

The message of the information design challenge ideogram contradicts the common belief that our informing is in fact the most advanced and most modern part of our culture. Is not the advanced character of our information the reason why we are calling our era "the Information Age?"

Although our informing wears the garb of advanced technology which disguises it as modern, our old-fashioned approach to information prevents us from truly taking advantage of that technology. *Traditional informing* keeps us confined to traditional presentation formats: A physicist writes *research articles*; a journalist writes *a newspaper column*; a fiction writer writes *novels*. The usage of the new media and technologies is largely confined to those purposes that are not covered by *traditional informing*, such as computer games.

### 3. A *designed* informing



**Figure 3:** The Information Design by Polyscopic Modeling ideogram depicts *information design*, as it is defined and practiced within polyscopic modeling, as the natural alternative to *traditional informing*.

While our *traditional* informing professions evolve spontaneously, *information design* must be *designed* before it can be put into practice. In (Karabeg, 2002b) the Polyscopic Modeling methodology is proposed as a prototype of a designed informing. The methodology includes a terminology, methods, results and a written definition. The terminology allows us to think and speak about information in new ways. The methods allow us to create new kinds of information that are different from the common ones regarding both form and content. The polyscopic modeling results are examples of new kinds of information and templates for the new informing. They also provide insights which motivate the new approach to information.

The methodology definition is a written convention based on which the methods and the results can be developed. Since this definition can be consciously verified and agreed upon, it also gives credibility to the *designed* information.

The Polyscopic Modeling methodology is defined in terms of eight postulates and an information model. The postulates include four principles and four criteria. The criteria specify what information should be like. The principles define the epistemology and the approach based on which the desired information can be created. Like our definition of *information design*, which is one of the principles, the postulates are so obvious and simple that they would almost seem redundant, if not for the fact that each of them designates a distinct line of departure from the common practice.

As suggested by the Information Design by Polyscopic Modeling ideogram (see Figure 3), the informing practice that follows from the proposed methodology is so different from our *traditional informing* that it appears as *traditional informing* in

reverse. Since the new practice allows us to see more, it may rightly be considered as the more natural of the two alternatives.

In support of this claim, I briefly outline the one principle, one criterion and the *polyscopic information* model.

### **3.1 Postulate 4: The *polyscopic modeling* approach**

Postulate 4 defines *polyscopic modeling* as “*information design by scope design*”. The *scope* is the way of looking, or whatever our *view* depends on. In practice, the *scope* may be determined by the language or the notational system, the ontological assumptions, the choice of the subject, the method and the presentation techniques.

Postulate 4 delineates a departure from the *traditional informing* in the following way: *Traditional* informing professions and disciplines are defined by their *scope*. In effect, a traditional discipline *is* a scope. Physics, for example, studies those subjects that can be explained in terms of ‘forces’, ‘masses’, ‘atoms’ and other ‘physical concepts’ and ignores others. *Scope design*, on the other hand, invites us to consciously *design* our *scopes*.

By defining *polyscopic modeling* as ‘*information design by scope design*’ it is made clear that the resulting information is not an exact picture of reality but a *scope* or a ways of looking. This has led to the following simple and completely general procedure for *justifying* or *founding* information which resembles the experimental method: A *scope* is offered, a *view* is claimed and a *justification* is provided. The reader ‘looks through’ the *scope* and follows the steps of the *justification*. If the resulting view corresponds to what is claimed, this ‘experiment’ is considered as ‘successful’ or ‘repeatable’.

Already the definition of the *scope* is an example of *scope design*. With the help of that concept we are able to look at our *scopes* and see that they tend to restrict our views, as shown in the ideogram. It immediately becomes obvious that the right way to use the *scopes* is to *design* them according to what needs to be seen. Another example of a *designed* concept is the *gestalt*, which corresponds to our intuitive idea of ‘information’ (understood as something that we need in order to be ‘informed’). In the book “What’s Going On?” (Karabeg, 2002c), which is conceived as a showcase for the new informing, it is shown that the *scope design* and other polyscopic modeling techniques are necessary for creating the *gestalt* and truly knowing what goes on.

### **3.2 Postulate 5: The *perspective* criterion**

Postulate 5 declares that “information needs to provide a clear and correct *perspective*.” In polyscopic modeling, the factual truth is extended and replaced by the *perspective*, which corresponds better to our intuitive idea of truth (Karabeg,

2000). The *perspective* means ‘seeing through’ an issue or phenomenon, seeing it in correct shape and proportions with nothing essential hidden.

Postulate 5 delineates a departure from *traditional informing* in the following ways: When we pursue the factual truth, we tend to focus on what is most visible and most certain. In media informing that leads to the focus on the most ‘spectacular’ events. In science, that leads to the focus on the themes that can be handled with established routines, because there we can most easily create facts. But when we pursue the *perspective*, we look ‘into the dark’ where information is lacking and create the necessary information *as well as we can*. The *perspective* criterion also obliges us to create well-proportioned views, point out to that which is essential and tell ‘the whole truth’. When we pursue the factual truth, we favor detailed and precise information. But since a mass of detail can be difficult to ‘see through’, such information may well obscure the *perspective*. To convey a clear *perspective*, simple and approximate pictures are usually preferable. While the words and logical arguments may be sufficient to establish the factual truth, the *perspective* requires that we use innovative visual techniques (Karabeg, 2000).

In a typical polyscopic modeling result the *scope design* is used to correct the *perspective* of some vital issue. In (Karabeg, 2002c), the concepts *cultural paradigm change* and *foundations of culture* are *designed* to create a clear and correct *perspective* of our modern cultural condition. In (Karabeg, 2002a), the *implicit information* is defined to correct the *perspective* of information and its effects. In (Karabeg, 2002d), the *power structure* concept corrects the *perspective* of socio-economic power and the role of information in it. In (Karabeg, 2001), the definition of the *addiction* allows us to comprehend the subtle influences of modern lifestyle on our well-being. The *perspective* of well-being is a recurring theme in polyscopic modeling (Karabeg 1999b, 2001) because that is what we needed in order to set our priorities right and ‘steer’ our culture. In polyscopic modeling, well-being is by definition the purpose of *culture*, and therefore the ‘destination’ of our ‘bus’.

### 3.3 Polyscopic information

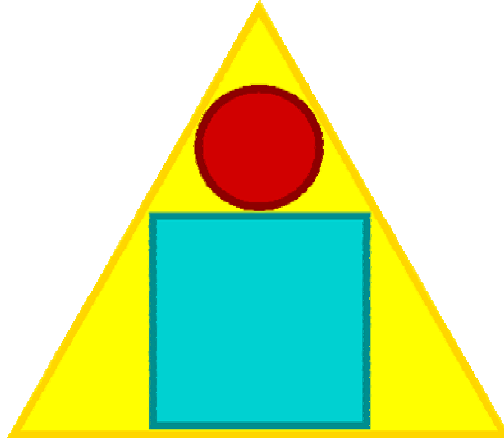


Figure 4: The *Polyscopic Information* ideogram depicts information (represented by the initial ‘i’) as consisting of approximate and holistic *high-level information* (the circle) founded upon precise and detailed *low-level information* (the square).

The Polyscopic Information ideogram depicts the information that is the objective of polyscopic modeling. The ideogram is an ‘i’ (for ‘information’) inscribed in a triangle. The triangle represents a hierarchy of coherent *scopes* (a *scope* is *coherent* if it represents a single level of detail and angle of looking). Intuitively, the triangle may be thought of as a mountain on which every point is a viewpoint. Those viewpoints are obviously *coherent*. The ideogram suggests that *polyscopic information* is organized in terms of multiple *coherent scopes*.

The information ‘i’ is composed as a circle resting on top of a square. The circle represents the *high-level information* which, like the view from the top of a mountain, gives a simple and approximate ‘big picture’. The square represents the precise and detailed *low-level information*. It is suggested that polyscopic information consists of holistic and approximate *high-level views* which are founded upon precise and analytical *low-level views*.

Polyscopic modeling is the natural way to integrate heterogeneous kinds of information by considering them as distinct *views* that correspond to different *scopes*. Even science and art can be integrated. Art naturally produces *high-level information*. Science naturally produces *low-level information*. Like the circle and the square that compose the ‘i’, in polyscopic modeling science and art are considered as inseparable aspects of all information.

It is easy to see that polyscopic information is exactly the kind of information that is needed for conscious choice. The *high-level information* gives us the large picture which is necessary for choosing directions. Founding the *high-level views* upon the more detailed and accurate *low-level* ones makes information reliable. Obviously, the information that is used as a guideline for conscious choice must be both clear and reliable.

Several *polyscopic books* are presently under design: a book about polyscopic modeling, a polyscopic textbook, a book about well-being and a book about modern culture. Each of them is an example of polyscopic information.

A simple example of polyscopic information has already been outlined in this note. Its *high-level view* is the Information Design Challenge Ideogram and its message. Its *low-level view* is the justification of the message of the ideogram. The *high-level view* is the view of the whole culture. It is produced by applying artistic techniques (a picture and a metaphor). The *low-level view* founds the *high-level view* in rational argumentation and experiential evidence.

The purpose of this piece of polyscopic information is to support the conscious choice of information. Without such information about information, we are bound to choose information either according to habit and tradition, or according to taste. But such choice is deficient, suggests the ideogram. Information must be perceived as a part of a larger whole, the culture. It must be created and chosen according to its role within the culture, so that the whole culture can fulfill its role (take us to higher well-being).

## Conclusion



**Figure 5.** The Information Design Is The Key ideogram suggests that *information design* (ID) is the key to a sustainable post-traditional culture.

While the *traditional culture* was able to develop through slow, spontaneous evolution, our rapidly changing post-traditional culture requires that we use conscious choice and *design*. But before conscious choice and *design* can be practiced, the right information must be in place to produce the required vision. Therefore *information design* may be considered as the key towards a well-functioning and sustainable post-traditional culture (see Figure 5).

In order to be useful, however, the key needs to fit the keyhole. In order to be practical, *information design* must fit the existing circumstances and conditions.

I anticipate that *information design* will become a new academic discipline and a new direction in practical work with information and information technology. The practical and the academic *information design* will naturally support one other.

The rapidly developing information technologies require new kinds of experts and expertise. As half a century ago the emergence of the computer led to the development of academic computer science, now again the emergence of a new technology is calling for a new academic discipline within which the required education and research can be developed. It is not difficult to see that the methodological approach to information can provide the framework that is needed for embedding the work with information and information technology into the academic tradition.

This introduction to *information design* would remain incomplete and distorted without discussing the intimately related issue of economic and political power. In the Information Age information is not only the prime commodity, but also the prime power source. To show that the *design* of information for conscious choice can be put into practice, we must show how this new approach can prevail over the power structures that depend on the existing style of making choices. In the accompanying article (Karabeg, 2002d) I argue that *information design* can be given power with the help of a new marketing strategy called *two-step marketing*, which uses the *designed* information instead of the common advertising.

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