

Information design – a new paradigm in creation and use of information

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Abstract—Anomalies, such as the information overload, show that a more powerful information technology alone is no guarantee that we will be better informed. If, however, we re-examine the fundamental questions of meaning and purpose of information and *design* an informing on that basis, we may be able to create and use not only the information technology but also the information itself in new and better ways. This article summarizes the result of a decade of the author's exploration of this possibility. *Information design* is introduced as the approach to information just mentioned. An *information design methodology* called Polyscopic Modeling is proposed as a concrete plan or prototype for a designed informing. Ten information-related anomalies are described to point to large incongruities in our present-day informing and specific elements of the Polyscopic Modeling methodology are offered as remedy. It is shown that *information design*, as represented by this methodology, differs in ten essential ways from our common *traditional informing*. Two examples are outlined to show that the designed information can be distinctly different from the common kinds of information in both form and content, and that *information design* may have large and interesting practical consequences. All things considered, *information design* emerges as a viable new approach to information, or as what Thomas Kuhn would have called a *new paradigm* in creation and use of information.

Index Terms—Information, information design, information design methodology, polyscopic modeling.

I. INTRODUCTION

FOR about a decade I have been involved in a project, whose purpose was to develop and propose a new approach to information. I call this new approach *information design*. Roughly speaking, the idea behind *information design* is to create and use information consciously, with a clear sense of purpose, or in other words to apply to information the sort of thinking which one would naturally use when designing a technical object.

Information is indeed such an important part of our modern world that it is not difficult to see why a more directed or conscious approach to information may be desired. An inadequate use of information might, for example, be one of the main reasons why we may have dangerous and worsening

global problems without being aware of them enough to take remedial action. Furthermore, as I explain in more detail below, insights are available within restricted communities or cultural traditions which have the potential to bring large positive changes to our lives and culture, but which have remained practically unknown for decades or even centuries. Finally, information is so closely linked with political and economic power that its misuse readily leads to power abuses. All this is, of course, becoming more relevant as the new information technologies keep increasing the power of information. It therefore seems plausible that large benefits may be drawn from a better thought-through approach to information, and that such approach to information may now even be necessary.

During the past decade I have worked on making this rather vague and abstract possibility more concrete, by developing the so-called Polyscopic Modeling methodology and proposing it as a prototype for a new informing. This *methodology* provides a terminology which can be used for talking about information in new ways (and hopefully saying what is truly relevant about it), criteria which specify what information needs to be like, principles which define the epistemology and the approach based on which good information can be created, methods for creating such information and examples which show what the new approach may look like in practice and what practical effects it may have. The Polyscopic Modeling opus also provides insights which show why our *traditional informing* is no longer sufficient and why *information design* can lead to positive change. The Polyscopic Modeling methodology has been described in a series of articles and conference presentations [1-15].

However, perhaps partly because of the unusualness of the whole undertaking, the meaning and the purpose of *information design* and Polyscopic Modeling has remained obscure to many of the readers the polyscopic modeling articles. I have characterized *information design* as “a new approach to information,” but it has been difficult for most readers to grasp what “an approach to information” might possibly be, and in what ways the proposed approach is really new and different from the existing approaches. In this article I clarify those central points by using a more precise concept “*new paradigm*.” The idea is to show that, as in Kuhn's classic theory of scientific progress [18], an existing way of doing things in a certain domain (which in our present case is the creation and use of information in general) is suffering from *anomalies* (problems or incongruences), and to propose a different way of organizing the domain which can resolve

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those *anomalies*. In the article ten anomalies in our present *informing* are outlined and it is explained how *information design* can provide remedies. Ten essential differences between the informing practice that is defined by the Polyscopic Modeling methodology and our common informing are described. Two examples are outlined which show how the information that results from *information design* can be different from the common kinds of information, and why it may have profound practical consequences. In the concluding section the main difference between *information design* and our common *traditional informing* is summarized in terms of a metaphorical anecdote.

II. WHAT IS *INFORMATION DESIGN*

Within our *traditional informing* information is created by following the hereditary practice of some traditional profession or discipline. A physicist, for example, learns from the previous-generation physicists what a physicist is supposed to do and does that. The same holds for journalism, philosophy, poetry and practically any other kind of information making we know of. In *information design*, on the other hand, information is *designed* to suit its role within a larger whole such as an organization or the culture. *Information design* begins with the question “what purposes does information need to fulfill within that larger whole?” and develops further by considering the question “What should information be like in order to fulfill those purposes better?” An ideographic definition of *information design* is given by the Information Design Challenge ideogram (see Figure 1), where it is suggested that the practice of automatically using the *traditional informing* within the *modern culture* is similar to using traditional candles as headlights of a modern bus. *Information design* means doing to information (or to *informing*) what one would naturally be inclined to do to the headlights of the bus in the picture, namely *designing* it according to its purpose, by taking advantage of the state-of-the-art technology and available methodological insights. By *designing* information, suggests the ideogram, we may be able to bring any larger whole within which information has a key role, such as an organization or the whole culture, to a safer and better functioning condition.

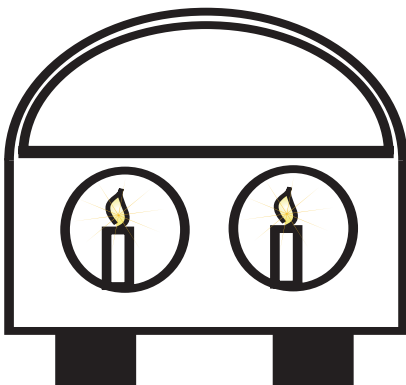


Figure 1: Modern culture with traditional informing is like a bus with candle headlights.

It goes without saying that the real-life *informing*, which includes such things as the educational system and news agencies, is not something that can be designed in an academic setting. What can be designed, however, is a small prototype, which is still large enough to illustrate the meaning, techniques and possible consequences of *information design*. The Polyscopic Modeling information design methodology is designed and proposed as such prototype. By describing the methodology we show concrete new possibilities (purposes, methods, formats, insight, cultural and business impulses) which can result from *information design*. We also show how an *informing* can be designed and what such design needs to include [1,2]. From a more practical point of view, the Polyscopic Modeling methodology is a sketch of a possible different way of creating and using information, and an invitation to researchers and practical informers to take part in the initiative to reevaluate and recreate our *informing*.

III. *INFORMATION DESIGN* CAN REMEDY THE ANOMALIES IN *INFORMING*

In this section we point to ten anomalies in *traditional informing* (TI) and explain how information design can lead to their resolution (ID).

A. *Information technology change*

TI. Our information technology has radically changed. But our *traditional informing*, by its very nature, has remained restricted to old information formats and old technology. The traditional job of a physicist, for example, is to publish *research articles* in *physics journals*. While our sanctioned informing remains confined to the old media, the new media are largely used for new purposes such as computer games. To see that this problem is deeper than just not taking advantage of the new media in informing, it is enough to observe that our children are growing up in a world dominated by the new media technology. In that world, our traditional school books may easily become simply boring. This shows that if our institutionalized informing remains organized as a collection of traditions, our powerful new media technology may become an *obstacle* to proper informing.

ID. By orienting our creation and use of information towards an explicitly stated purpose instead of basing it on the habits of a tradition, we can use the new media creatively whenever they offer a better way of fulfilling the chosen purpose.

In the Polyscopic Modeling methodology the chosen purpose is to provide a suitable or functional cultural vision. In our global, technological and rapidly changing culture, we depend more and more on large and abstract entities such as the global economy and the bio-physical environment. One of the key tasks of informing is to make those abstract entities palpable and real to us, as real as the wolves and forest fires were to our distant ancestors. In polyscopic modeling, the ideograms, such as the one shown in Figure 1, are used as a tool for making abstract things and their relationships visible

and palpable [9,15]. The existing ideograms are, however, no more than a place holder for a variety of possibilities that can be developed by using the new media technology.

B. Information overload

II. The information overload is a cultural anomaly where massive information obscures what we really need to know and undermines the value of information and learning.

Perhaps a better term than “information overload” is Richard Wurman’s “information anxiety,” understood as “the mental condition produced by the ever-widening gap between what we understand and what we think we should understand” [19]. Wurman describes the information anxiety as “the black hole between data and knowledge.”

ID. *Information design* can help us remedy the information overload by postulating the criteria which regulate what information should be like, and by providing specific methods and structuring techniques for creating good information.

The Polyscopic Modeling methodology offers an information model which allows us to understand the information overload, and specific criteria and techniques which allow us to remedy it. Information is not considered as a *flat* collection of “pieces of information” or facts, but as structured according to the underlying way of looking or *scope*. Every thing or issue can be seen and presented from a multitude of *scopes*. The *scopes* and the corresponding views belong to a virtual hierarchy in which the *high-level scopes* and views, like the views from the top of a mountain, show the “large picture” but not the details (or “the forest” but not “the trees”). Within this model, the information overload may be understood as a result of having excessive amounts of *low-level information*, without the corresponding *high-level information* which would allow us to become aware of its existence and meaning. Our information is such that we see every issue at the level of the trees but not at the level of the forest, which makes us lose clarity and orientation.

In the Polyscopic Modeling methodology, criteria and techniques are provided to support the creation of the missing *high-level information*. The *high-level information* can help us remedy the information overload by substituting simple, general principles for massive, unrelated data. *High-level information* corresponds to what has traditionally been considered as “good information”: to principles and “laws” in science, and to knowledge and wisdom in practical informing. The *high-level information* also allows us to organize our information hierarchically and in that way make the access to *lower-level information* efficient, in a similar way in which the access to the numbers in a telephone catalogue is efficient.

As the programming methodologies once allowed us to tame the complexity of large-scale computer programming by providing structuring ideas and techniques, so can the information design methodologies help us tackle the complexity of handling massive information. The structuring principles and techniques that are being developed within the Polyscopic Modeling methodology have a similar purpose as the common high-level programming language constructs such as objects, subroutine calls and if-then-else statements.

C. Epistemology change

II. Our understanding of information and its relationship with reality has undergone a radical change during the past century. Our academic tradition, from which our worldview in general and our epistemological ideas in particular originated, has its roots in the Hellenic philosophical tradition in which the main purpose of philosophizing, *and of information*, was to know the reality as it really is. Towards the end of the nineteenth century science seemed to be bringing this project to final success. At that time the scientists considered the universe to be in principle a large mechanism governed by causal relationships (“natural laws”). When Darwin explained even the nature and the origin of the living world in causal or “scientific” terms, a complete understanding of the universal mechanism seemed to be within reach. At that point science assumed the role of our trusted information provider and became the main truth standard in both education and legislation. This development has had a deciding impact on the world view of an educated person today.

During the twentieth century, however, the conception of the universal mechanism collapsed on solid, experimental grounds [20]. Parallel to the fundamental discoveries in physics, profound new insights in psychology and cognitive science showed us that what we call “reality” is really our own mental construction [21]. Developments in philosophy such as constructivism and phenomenology pointed in a similar direction. A different epistemology emerged, in which all information including the scientific one is not considered as an exact picture of reality, but as a more or less imperfect representation of human experience.

This, however, did not result in a corresponding epistemology change in practical *informing* and a correspondingly large positive cultural change, as it was quite naturally expected [22]. In our education and legislation and in our modern worldview the idea of a mechanical universe that is governed by known causal relationships still prevails. There is also a growing tendency towards relativism (belief that everything is just a matter of personal taste and preference). But the relativism is a poor alternative even to the belief in the mechanical universe, because a culture can hardly function without some agreed-upon way of distinguishing good information from nonsense and misinformation.

ID. *Information design* can provide “true” or “good” information by convention. That convention is the *methodology*. The methodology specifies how facts can be established and verified. Since the methodology is a convention, it alleviates the need for a belief system as the foundation for an epistemology. The methodology simply *postulates* the meaning of information, definition, proof and all other basic elements of a method *within the context of the methodology*.

The Polyscopic Modeling methodology is designed so that it can allow for creating facts, similar to the scientific ones, about any question where facts may be needed. The approach used for this design is natural and simple: Take what we have learned about information making from sciences, arts and other traditions, generalize it so that it is applicable in general,

and apply those general methods to those issues on which reliable information is most needed.

The *justifications* in Polyscopic Modeling methodology are modeled according to the notion of “proofs” or “repeatable experiments” in science. The author provides a *scope* (a subject or issue and a way of looking at it), a claim and a justification. The claim is considered as *justified* to the extent that it is “repeatable” (i.e. that it works for many people and situations) and that it cannot be falsified. Intuitively, the *scope* may be thought of as a scientific instrument (such as a microscope or a telescope) which the author offers to the reader to be used in *justification* (“experiment”). This “experiment” is considered as successful to the extent in which the *view* which is seen through the *scope* corresponds to what is claimed.

Such *justifications* allow us to create facts that are reliable, non-dogmatic and acceptable to a modern person. Examples or *results* are provided to show that polyscopic modeling can produce solid and convincing facts about basic questions of modern life and culture.

It is worth noticing that the developments around the epistemology change point to a more general vulnerability of our *traditional informing*, namely to its inability to adjust structurally to large changes. Even though its epistemology has changed, our *traditional informing* has remained largely as it was before that change. A methodology, on the other hand, is designed as a whole. A methodology functions, because it has all the necessary elements which an *informing* needs to have, including an epistemology and a collection of methods for establishing facts that are consistent with it. All the elements of a methodology are designed so that they are consistent with each other and that they function harmoniously together. The Polyscopic Modeling methodology may be understood as an *informing* which is consistently based upon the epistemology which has emerged as a result of fundamental new insights in science and philosophy during the past century.

D. Cultural paradigm change

TI. We are living in the midst of a *cultural paradigm change* of unprecedented dimensions, which is similar to the Renaissance but even deeper and larger. Our culture is changing its very principle of organization from *traditional* to a new one. In a tradition, the *basic information*, which determines the basic choices of lifestyle, values and social conduct, is *implicit* in the customs and beliefs of the tradition. This information is tested through many generations of use, assimilated with the rest of the culture and passed on to every new generation possibly with small changes. This allows the *traditional culture* to evolve spontaneously, in a similar way as organisms and ecosystems evolve according to Darwin's theory.

To the extent that our culture is no longer a slow-evolving *tradition* in which people respect and closely follow the lifestyle and beliefs of their ancestors, our culture is no longer able to develop its *basic information* through spontaneous evolution. In a culture where we choose “freely” and not according to the dictates of a tradition, we need *explicit information* to guide our choices. However, our *traditional*

informing, which has developed in a different culture with different needs, does not give us such information. This has led to a remarkable paradox: The information which would instruct us about basic things in life such as how to raise our children, create a successful couple relationship or which values to adopt as orientations in our personal and communal lives, namely the information which has always been the very core and substance of culture, is practically completely missing from our sanctioned informing. In *modern culture*, providing reliable information about basic things in life is nobody's job. It is not even clear how such information might be created so that it has the authority and credibility comparable to “scientific truth.”

A new way of steering the development of our lifestyle, preferences and values grew in the power vacuum which was created by the downfall of once omnipotent traditions – advertising.

ID. By definition, *information design* is the *design* of information according to the needs of the culture. The natural main purpose of an *information design methodology* is to provide methods by which solid and reliable *basic information* can be created, and criteria to ensure that such information will consciously be given priority.

The Polyscopic Modeling methodology provides specific criteria and methods for creating new kinds of information which are needed by our culture in transition [1-3]. This methodology has been designed to serve as an informing which can facilitate the cultural change, and also serve as the natural *informing* in the emerging culture.

It is not difficult to see how *information design* may lead to positive cultural change. For quite some time we have been using science to understand the nature and design to develop the technology. At the same time, we have been using the *tradition* (a far slower, less conscious and in our modern circumstances less reliable approach) to develop our culture. It should not surprise us if we now have a culture which has in its development fallen behind our science and technology, and is therefore unable to control and use science and technology meaningfully. The vision behind *information design* is that, by using a more conscious approach to culture in general, and to information in particular, we may be able to produce a positive change in our culture which is comparable to the Industrial Revolution. Such change is necessary if our culture should be able to control and direct the power it has acquired during that revolution. The examples of application of *information design*, such as the ones explained later in this text, show why such change may indeed be possible.

E. Role and organization of the university

TI. In our culture the role of the university is to create (research) and disseminate (education) sanctioned and trusted information. But the *traditional* organization of the university makes it difficult to adapt to the changing needs of the culture and fulfill that role.

ID. The goal of *information design* as an academic undertaking is to embed the *design* of information into the academic practice, which alone has the expertise to carry out the project and the power to disseminate its results.

At the University of Oslo we are developing a model research and teaching program in *information design*. We are also co-organizing an international conference and educational program in the Inter University Centre Dubrovnik, whose main goal is to develop a cross-disciplinary community in which this work can further develop and mature.

F. Lack of cultural vision (the sustainability issue)

TI. Environmental and health statistics can be quoted to show that our culture is lacking the sort of vision which would allow it to use its technology and other resources in sustainable and truly beneficial ways. Einstein's well known observation that we cannot solve the large problems of our time by thinking in the same way as we did when we created them highlights the need for a new way of thinking. Since information is what gives a concrete form to our thoughts and ideas, our *traditional* approach to information is what keeps our way of thinking from changing as the circumstances require.

ID. *Information design* is conceived as an approach to information which can give our fast-moving culture the required vision.

The Polyscopic Modeling methodology supports the so-called *holistic* thinking and informing which has been pointed out as the way of thinking which is necessary for the solution of the large problems of our time [23,24], and singled out as the main characteristic of the emerging "new paradigm"[25].

If we use the already explained definition of *traditional culture* as the culture in which the large wholes, such as culture itself and its informing, originate through spontaneous evolution, it is not difficult to see why the *traditional culture* would spontaneously develop the habit of conforming to the traditional cultural roles without asking about their meaning and purpose, that being the sort of thinking that spontaneous evolution of culture requires. It is also easy to see why, to the extent that our culture is no longer able to evolve as a *tradition*, it is now necessary to look at those large wholes first, to see if they are still well structured and functional, before we proceed to perform a given role within them. *Information design* is a result of such, *holistic* thinking about information and culture.

The Polyscopic Modeling methodology has a number of provisions which support *holistic* thinking and informing. Its *perspective* criterion postulates that information needs to provide a clear and correct idea of the whole [2,9]. The distinction between *high-level* and *low-level* information encourages us to seek the right level of abstraction on which a phenomenon can be understood [1,2]. The focus on *scope design* invites us to find the right "angle of looking" from which an essential aspect of the whole can be seen and understood in clear terms. Specific justification techniques are developed for creating *high-level* facts. Specific presentation techniques such as the ideograms are provided for showing large, abstract entities and their relationships. Polyscopic modeling results, such as the ones that are described later in this article, serve as examples of *holistic informing* and point to the changes in business and society that can follow from this approach.

G. Ignored information

TI. Scientific studies of the influence of modern lifestyle on health and well-being, such as the classic results of Weston Price [26] and Werner Kollath [27], challenge the popular myth of progress (the belief that the progress of science and technology has brought us a correspondingly large improvement of well-being). Presently, however, there is practically no public awareness of those studies and their implications. This is only one out of the many examples where some essential insight and fact, although in principle available, have remained ignored.

This is an anomaly in the strict sense, because it involves scientifically established insights which are ignored because they contradict the prevailing beliefs and values. The results of Price and Kollath show that, in some strange way, we have been entirely focused on developing science and technology as means of changing our living conditions, while failing to give due thought to the *direction* of that change, namely to consider how our increasingly artificial living conditions are really affecting us in the long run.

ID. *Information design* supports the *conscious* creation and choice of information, by which the most needed and relevant information is given priority.

In the Polyscopic Modeling methodology *information* is defined in a way which emphasizes its role as evolutionary heritage, i.e. as something which is essential for our adaptation. The Polyscopic Modeling relevance criterion regulates the conscious choice of such information. The *high-level information* is used to point to the most relevant *lower-level information*.

The reference system for applying the Polyscopic Modeling *relevance* criterion is that we, civilized humans, are organisms biologically adapted to living in nature, now living in an artificially created environment. We are something like the house plants which, if properly watered and cared for, can grow healthier and taller than the plants in the forest, but if not, will surely wither and die. The primary role of information is to allow us to monitor and direct the subtle but vitally important developments on the interface between our cultural and physical environment and our well-being.

H. Denied information

TI. A wealth of information exists in a variety of communities and traditions, ranging from transpersonal psychology to Buddhism, which points to the possibilities of higher well-being that are latent in every human being, which can be realized through cultivation. Yoga, qigong, Feldenkrais, Alexander technique, meditation, body awareness and bioenergy are a few among very many new buzzwords denoting insights which are applying for citizenship rights in our culture. But since those insights are not established by the standards that are accepted by our culture, they are denied those rights and pushed into a cultural margin called "alternative culture."

ID. *Information design* can establish a truly democratized round table for a cross-cultural dialog.

Polyscopic Modeling epistemology establishes a broad foundation for preserving and integrating the immensely rich

cultural heritage that has just recently become available to us. As explained in our first example, this heritage, when turned into proper *high-level* facts and insights, has the capacity to profoundly affect our culture.

The Polyscopic Modeling methodology defines *information* as “recorded experience.” It defines *culture* as “cultivation of well-being.” This means that the substance of information is human experience. This allows us to treat all forms of experience on an equal basis, and to assimilate them into our culture according to their relevance and reliability. The focus on well-being and cultivation gives priority to information which tells us about the possibilities for the long-term cultivation of our well-being.

I. Information as an instrument of power

TI. Information is the pivotal factor in both political and economic campaigns. At the same time, the power of information is hardly regulated at all. Our common belief in “free press” and unguided “free choice” secures no more than the free *misuse* of that power.

ID. An essential part of the *information design* project is to allow for the substitution of “free choice” by conscious or informed choice. The key step in that process is the conscious choice of information.

The Polyscopic Modeling methodology is proposed as guidelines for conscious creation and use of information. The methodology provides concepts that are needed for understanding the effects and the power of information. By defining the *implicit information* [4] it is explained how the power of information can be misused. By defining the *power structure* it is explained how such misuse can spontaneously develop, even without anyone’s awareness or intention, and why the “free choice” should not be considered as truly free. Specific criteria are designed for controlling the subtle power of information [1].

A potentially fruitful political idea that has come out of *information design* is the *power structure design*. The motivation behind it is that it seems rather useless to try to solve problems by appealing to consciousness if the proposed solutions cannot be incorporated into the existing *power structure* (i.e. given sufficient power in the existing economic and political circumstances). The *power structure design* is a form of political action where we create something (say, a new business model or a new approach to marketing) which can affect the power balance in such a way that the desired change develops spontaneously. A practical instance of this approach is being developed in our inter-university project called Authentic Norway [5].

J. Information as an instrument of economic recovery

TI. The times of large cultural and technological change are also the times when new business opportunities become available and when fortunes can be created. Although we are living in such times, our markets are saturated and our economy is stagnant.

Adrian Wooldridge writing in *The Economist* describes this situation as follows: “... a striking number of multinationals have reached the limits of the traditional model for generating growth: inventing new products and then rolling them out

worldwide. They have consumed all the low-hanging fruit of globalization [...] Many global markets are now saturated. At the same time, companies are finding that it is getting much harder to come up with new products. How much demand is there for razors with four blades rather than three? Or for lemon-and-lime flavoured diet cola? [...] Saturated markets and fewer new products tend to spell lower profits. Is there any way for firms to escape this trap?” [27]

ID. By offering real information as guidelines for making choices, *information design* leads to a new approach to marketing, which has been called the *two-step marketing* [3]. This has the potential to open new markets for new products.

This development gives us the possibility for the following *power structure design* strategy: By placing the designed information in the service of business which is in the need of new markets and products, we may be able to align the power of business behind the *cultural paradigm change*.

IV. INFORMATION DESIGN IS DISTINCTLY DIFFERENT FROM TRADITIONAL INFORMING

In this section we point to ten differences between the *traditional informing* (TI) and *information design* (ID) as it is made concrete and practiced within Polyscopic Modeling. Our intention is to show that *information design* is distinctly different from our common *informing*.

A. The meaning and purpose of information

TI. The tacit assumption on which our *traditional informing* is founded is that the purpose of information is to give us an accurate and unique or “true” picture of reality. Information is considered as something like a jigsaw puzzle, a collection of “pieces of information” which together compose the reality picture.

ID. In the Polyscopic Modeling methodology the *information* (defined as “recorded experience”) is considered primarily as our evolutionary heritage (an instrument of biological and cultural adaptation) and as the main instrument of *culture*. The idea is, roughly, that we humans have been able to replace the biological evolution, in which *information* is recorded genetically (i.e. in “hardware”), by the cultural evolution in which the information is recorded in terms of such things as books, poems and customs (i.e. in “software”), and in that way evolve much faster.

Armed by the above definition, we can look at our culture and at the totality of human experience and ask: “What is it in human experience that really needs to be communicated so that we can be better adapted, and so that our *culture* can better fulfill its role (which is, by definition, the cultivation of our well-being)? What sort of information can bring us the highest evolutionary advantages?” And “What should information be like so that it can best serve its purpose?”

B. Organization and manner of development

TI. When our goal is to provide pieces of information, understood as snapshots of reality, it is natural to divide the reality across disciplines by assigning a part of reality to each. When our goal is to provide facts, it is natural to adhere to a fixed set of methods which have proven in practice to give a

highest truth content. The organization of *traditional informing* clearly reflect this orientation.

ID. When our goal is to provide the *information* which is most needed by our culture, the division into disciplines is an obstacle and a fixed set of methods is a limitation. Polyscopic Modeling is a *general-purpose information design methodology*. Methods from sciences, arts and other traditions are generalized and combined and made applicable to all questions. New methods are developed according to need.

C. Choice of themes

TI. In *traditional informing* the themes are chosen from the habitual repertoire of a profession or discipline. A journalist writes about such things as sports and political events. A physicist writes about such subjects as subatomic particles and planets. A traditional profession provides a terminology, methods and techniques for practicing that profession. The themes are chosen among those that can naturally be handled by the terminology and the methods of the profession.

ID. *Information design* chooses its themes consciously, according to relevance. The methods are adapted to that purpose.

The polyscopic modeling approach is defined as “*information design by scope design*” where *scope design* means that the *scope* (what is being looked at and how) is *designed* (consciously chosen or created). In polyscopic modeling the concepts are *designed* to suit the chosen theme. One of the principles of Polyscopic Modeling postulates that “the *scope* determines the view,” which means that our way of looking, reflected by our choice of concepts before all, determines what we are able to see. The right choice of the *scope* is considered to be the central issue in informing. The basic credo of polyscopic modeling is that every phenomenon or issue can be made transparent, and even rigorous and precise (or “scientific”) through a suitable choice of level of abstraction and angle of looking, which are determined by the choice of the *scope*.

D. The foundations of the method

TI. In *traditional informing* the foundation of the method is a tacitly assumed correspondence with reality. It is usually assumed that the traditional *informing* methods are something like photographic cameras, which show us the reality as it really is.

ID. In *information design* there are no tacit assumptions. The developments of the methods are based on an explicitly stated convention – the methodology definition [1]. This foundation of the methodology is carefully justified.

E. The meaning of concepts, definitions and theories

TI. In *traditional informing* the concepts and theories are believed to correspond with objectively existing things. A definition is supposed to reflect the true meaning of a concept. One would, for example, try to define “culture” by finding out what “culture” really is.

ID. In polyscopic modeling the concepts are not assumed to have any exact, pre-defined meaning. The definitions *postulate* the meaning of the concept. The postulated definitions are the key to *scope design*. It is not assumed that reality has any predefined structure whatsoever. Rather, whatever stands before our experience is considered as something like an ink blot on which we ourselves impose a structure. Many structures are considered as possible.

Within Polyscopic Modeling the questions such as “What is consciousness?” or “Does God really exist?” which seem natural in *traditional informing*, are considered as rather misconstrued. One should rather *postulate* the meaning of the concepts “consciousness” or “God” in such a way that answering the relevant questions is made easy.

In the Polyscopic Modeling methodology, the definitions are made so that they allow us to express what really needs to be expressed. For example, when ‘*culture*’ is defined as “*cultivation of well-being*”, the culture is assigned a purpose. In the *traditional* scheme of things it is meaningless to ask whether a culture is functioning, or what sort of informing a culture needs in order to evolve and function as a culture. The culture is what it is, and it functions by definition. In the polyscopic modeling scheme of things, the *culture* is not a thing out there but an ideal concept which is our own creation (our own, designed *scope*). With the help of postulated definitions statements such as that *modern culture* needs *information design* can be made precise and proven by a rational argument. In this particular case, the statement follows easily from the definitions.

F. Criteria and logic

TI. In *traditional informing* the factual truth (whether a piece of information corresponds to reality or not) is considered to be the only criterion which must be consciously secured, while everything else is pretty much a matter of taste or “free choice.” This value judgment is recognizable in both ethics and legislation. It is also reflected in logic, where truth and falsehood are assumed to be the substance of all reasoning.

ID. In polyscopic modeling the factual truth is considered to be a deficient and deceptive criterion. Four criteria are designed to supplement and replace it. Each of the criteria represents a line of departure from common *informing*. One of them, the *perspective* criterion, requires that we represent the whole subject or issue in accurate shape and proportions, with nothing essential hidden or obscured [9]. Simply said, the *perspective* criterion requires that we say in clear terms what is essential about a subject. This criterion supports a *holistic* orientation in informing. While factual truth demands that we use the time-tested techniques (such as “the scientific method”) and find facts with relative or presumed certainty, the *perspective* criterion and the closely associated *relevance* criterion require that we find out about the essential things we don’t know *as well as we can*.

The logic that suits Polyscopic Modeling is not based on truth and falsehood but on multiple scopes, models and their relationships. An initial sketch of this logic, based on the specifically designed modeling language called **ab**, is given in [12].

G. Preferred level of detail

TI. In *traditional informing*, the preferred piece of information is detailed, precise and “objective,” which often means “technical.”

ID. In polyscopic modeling information is considered as existing on multiple levels of detail. Each level is necessary for its own purpose. The *high-level* information, like the view from the top of a mountain, shows the direction. The *low-level information* shows how to follow the chosen direction. The task of *informing* is to provide the whole hierarchy. Since the *high-level information* has been unduly neglected, it is given priority.

H. Preferred style

TI. Conceived as a description of reality, the *traditional informing* has a narrative description as preferred style.

ID. In polyscopic modeling the preferred style is a concise and clear *high-level* claim followed by an argument or *justification*. The goal is to create simple and well-founded *high-level* facts, which can then be used as building material and as foundation for higher-level facts.

This article also has a *polyscopic* structure. The article is structured as a statement and justification of the claim that *information design* is to *informing* as a new paradigm in Thomas Kuhn’s model is to the scientific field where it has been developed.

I. Preferred document format

TI. The *traditional* document formats are fixed (an article, a letter, a report, a poem etc.). They have a *flat* and *linear* structure. ‘*Flat*’ means that all parts of the document (excluding of course such things as titles and ingresses) have the same meaning and value (level of detail, angle of looking). ‘*Linear*’ means that the whole document is expected to be read sequentially.

ID. The *polyscopic* document structure is modular. Each module represents a single, *coherent scope* (a *scope* is *coherent* if it represents a single viewpoint, reflected by the level of detail, angle of looking and style of presentation). The *high-level* modules are clearly distinguished from the *low-level* ones. The modular organization of the document communicates the *perspective*, makes it easy to verify the *justification* and makes the reading of the details optional.

J. Use of media

TI. In a typical *traditional informing* profession the information is predominantly verbal. Pictures, if they exist, have a subordinate role of illustrations. The role that could be fulfilled by the new media technology is unclear.

ID. Since the goal of *information design* is to create a functional worldview, show the invisible, make abstract things palpable and real and create completely new kinds of information, it naturally supports the creative use of new media technology in *informing*.

The following two examples show that *information design* can produce information which is in essential ways different from the common kinds of information, and why such departures from the tradition may be useful or even necessary.

V. EXAMPLE 1: CONVENIENCE PARADOX

Our first example is a *polyscopic book* project called Convenience Paradox, which has been developed in three articles [3, 6, 17] and unpublished sketches. The book illustrates how *information design* can bring the scientific approach to an area where *traditional science* is not usually applied – values.

In this section we use the Convenience Paradox book to point to differences between polyscopic information design and traditional science. By TI we denote the common approach which is typical in traditional science, while ID denotes *information design* as represented by the Convenience Paradox book project.

A. Choice of the theme: Perspective of well-being

TI. The job of traditional science is to model the natural phenomena in terms given by its traditional disciplines. Science chooses its themes accordingly. It would be difficult to imagine how traditional science might be applied for studying something like the values. Consequently, science has given us great power over natural phenomena. But it has taught us little about how this power should be used.

ID. The job of *information design* is to give us the information which is essential but lacking. The Convenience Paradox book is conceived as a polyscopic guidebook for an informed pursuit of happiness (in the book the term “well-being” is used instead of “happiness”). The goal of the book is to provide a holistic idea or *perspective* of well-being by showing what it really depends on and in what degree, and in that way provide a frame of reference which we can use to orient our efforts.

B. Result: Convenience is not well-being

TI. Although science does not explicitly study our values, it has never the less influenced them through its causal and empirical way of thinking and through its conception of the universe as a large mechanism. It is in close accord with such thinking that we consider *convenience* (what is experienced as easy and pleasant) to be the real cause of our ease and pleasure. Hence we identify convenience with well-being, and we develop our technology and culture accordingly.

ID. The main result of the Convenience Paradox book is that convenience is a deceptive and paradoxical value. The *convenience paradox* is the situation where the pursuit of convenience reduces well-being or hides the way to higher well-being, in other words where convenience leads to inconvenience. The book shows that the *convenience paradox* arises so often, that it makes convenience a useless and deceptive guide to well-being.

The reason for the *convenience paradox* is that the pursuit of convenience, although perhaps pleasant in the short run, often has adverse long-term effects on our condition, which in turn affects our experience of ease and pleasure. To see the

paradox, it is enough to think about trivial examples such as physical exercise. The book, however, goes beyond trivial examples by organizing under the common name *convenience paradox* a variety of less known and rather fundamental insights about the nature and the dynamics of well-being.

C. Method 1: Perspective and holistic science

TI. Directed by factual truth as criterion, science grows incrementally. It operates on the borderline of the existing factual knowledge aiming to extend it further.

ID. Directed by specifically designed criteria such as *relevance* and *perspective*, the *information design* focuses on the most obscure sides of the most relevant issues, aiming to illuminate them *as well as possible*.

Already quite trivial arguments will suffice to see why, when we are trying to picture the way to well-being, the *perspective* is what we need as the guiding criterion rather than the factual truth. We may, for example, have almost everything we need in order to be happy or well, but if even a single vitamin is missing from our diet, all the rest may be in vain. In a similar way, if even a single vital organ is failing in our otherwise healthy body, the health of all the rest may be in vain. In Polyscopic Modeling, the well-being is modeled as *wholeness*. The *perspective of well-being* gives us a holistic or *high-level* idea of our well-being or *wholeness*, the main factors it depends on and their degree of significance.

Specific polyscopic modeling techniques such as *ideograms* and *patterns* are applied towards that goal. The *convenience paradox pattern* is represented by an ideogram, explained and then used to state the main claim. This claim is subsequently justified by using a tailor-made justification method as explained below.

The *convenience paradox pattern* as a type of result may be contrasted with the notion of a “natural law” in traditional science, where a certain effect is expected to result *always* whenever certain causes are in place. Here the result is simply to point to a *pattern* and to show that it is repeated so often that it should be considered a rule rather than exception. For our practical purpose (disqualifying the convenience as the measure of well-being) already pointing to the existence of the *convenience paradox pattern* is sufficient.

D. Method 2: Justification

TI. Science uses experiments to establish facts. In addition to its obvious advantages, the experimental method has the disadvantage that it is not easily applicable to many of the questions about which reliable information is needed. Consider, for example, the influence of lifestyle choices on well-being. It would be physically impossible and also morally wrong to subject a group of people to certain lifestyle choices from birth to death, or perhaps even through several generations, in order to understand their effects.

ID. In *information design* the method is adapted to the goal.

It turns out that, fortunately, we already have something which rather closely resembles the above experiment, namely our various cultural traditions (we use this term very broadly

to include anything from oriental traditions such as yoga, Buddhism and qigong to various professional groups and movements such as the therapy schools of F.M. Alexander and M. Feldenkrais and the psychoanalytic community). Each of those traditions is a result of working with large numbers of people in a certain way over an extended period of time, and as such carries a wealth of valuable information about our theme. In the book a method it is shown how the polyscopic modeling approach allows us to extract the essential information from the language, cosmology and other idiosyncratic details, present it in a way which is accessible to a modern person and give it sufficient credibility so that it may be used for making basic choices.

The justification technique developed for this particular study is called the *testimonies*. In this technique the leading sources from a large number of relevant traditions are used in a similar way as witnesses are used in a court trial. Everyone is allowed to speak. If independent witnesses tend to agree particularly well regarding a certain point, that point is given higher credibility. The *convenience paradox* result is established by showing that it is a fundamental insight shared by all the traditions that are used in the study.

Another form of justification is theoretical. The Polyscopic Modeling approach allows for theoretical justification by providing the terms which are postulated and therefore precise. Most of the claims in the book are substantiated by simple theoretical arguments.

E. Method 3: Information ecology

TI. From the scientific point of view, the heritage of the traditions is often disqualified as pre-scientific nonsense.

ID. From the Polyscopic Modeling point of view, the cosmological and other beliefs, both in science and within the more “traditional” traditions, are just modeling artifacts. The substance of information is the underlying experience. Of a particular value is the information which tells us about something essential but subtle. The information about the long-term effects of basic life-style choices is from that point of view central.

To see why the heritage of the traditions should be considered as “endangered species” under the circumstances of our *cultural paradigm change*, it is sufficient to think about that heritage as a result of cultural evolution which is quite similar to the biological one. Through this evolution, most valuable “cultural genes” have developed. But our on-going “cultural revolution” may affect our cultural species in a similar way our Industrial Revolution has affecting the natural ones, and perhaps even more adversely. In such circumstances, our primary responsibility towards the sustainability of culture is to preserve those species and allow them to evolve further under the changed circumstances.

The way the Convenience Paradox book contributes to this preservation effort is by extracting from the various cultural traditions the information which is valuable in our own culture, and by presenting this information in a form which is accessible and credible for a modern person. At the same time,

the *convenience paradox* result helps us understand the value of specific insights, facts and cultural techniques which would otherwise probably be ignored as obscure or insignificant.

F. Content 1: Dynamics of well-being

TI. Science gives us many useful insights about how different things influence our well-being. Science does not, however, attempt to join those insights into a holistic picture or *perspective* which we might use as a “map” for orienting our choices. Furthermore, by suggesting that the universe is in principle a mechanism, science gives us a misleading *high-level* idea of the dynamics of well-being. Indeed, when the dynamics of well-being is the subject, the metaphor of a growing tree is far more useful the one of a mechanism, which emphasizes the *immediate* factors of well-being, which are the ones we are well aware of already.

ID. The intended effect of the *convenience paradox* result is to correct our distorted *perspective* of well-being by giving us a more accurate and very simple *high-level* picture of its dynamics. The basic message is that well-being is created (or lost) through long-term cultivation (or its absence).

The resulting insight is that making choices according to convenience is as little meaningful as always going down, because that is easier, instead of going where we really want to be. Convenient choices are no better than just spending money, because that is more pleasant, instead of earning and economizing so that we can have more money to spend. It is not difficult to see how this insight, combined with a consciously developed practice of using *high-level information* for directing choices, may have profound cultural consequences.

G. Content 2: Aspects of well-being

TI. Science focuses on curing disease. It tells us little about the other half of the continuum of well-being, “from zero to plus infinity.” Therefore scientific information is not very useful for the task of creating a culture which cultivates well-being.

ID. Under its main result, the Convenience Paradox book organizes a number of insights about the cultivation of well-being. Four *aspects* of well-being are distinguished in the book: bio-chemical, physical, emotional and cognitive. Bio-chemical well-being has to do with food and digestion, and also with subtler things as the metabolism of toxins and breathing. The physical well-being is about physical fitness, and also about muscular tension, stress control and fatigue. The emotional well-being is about our pain, pleasure, anxiety, fears and projections, and also about our ability to love which, like so many other good things, can also be cultivated. The cognitive well-being is about our ability to comprehend, think in new ways and be creative, and also about the so-called “higher levels of consciousness” and “spiritual” insight.

H. Content 3: techniques and principles

TI. Specific techniques for cultivating well-being such as the ones provided by qigong and yoga are not the usual subject of study in traditional science.

ID. The reason why we study such techniques in the Convenience Paradox book is not only to understand their value as specific and practical means for cultivating well-being, but above all to understand the more general principles which govern their effects, and then to apply those principles for understanding and revitalizing culture. With the help of such principles we may move beyond developing the technology in the way which allows us to *avoid* physical movement, and use it rather in the way which gives us the *right kind* of movement. Instead of trying to fit into a traditional marriage as a form of relationship as we are “supposed to” but often cannot, this approach would give us practical guidelines for using our primary relationships to cultivate love, compassion and sexuality and in that way develop fully and live a complete human life. Instead of considering work as no more than a way to make money, we would consider it as an opportunity to develop and use our abilities, realize our life purpose and experience communion with people who share similar values.

I. Message 1: A different culture is possible

TI. Science cannot be blamed for our cultural situation. Indeed, the purpose of science is to understand nature, not to guide the development of culture. However, the use of science as the trusted information provider has led to a remarkable misbalance: We are able to understand and control the natural phenomena far better than the cultural ones.

ID. The vision behind *information design* is a culture which has equally reliable information about all basic issues as our present culture does regarding the natural phenomena. As this example suggests, conscious development and use of such information may lead first of all to different values, and then to a completely new orientation in the development of lifestyle and culture.

J. Message 2: A different informing is necessary

TI. Science simply does its job. Asking what sort of informing we need is not a part of that job.

ID. The main consequence of the *convenience paradox* result is that the naïve pursuit of happiness is fundamentally misguided and misdirected. For choosing a suitable direction we need suitable information. The information which can serve for conscious choice needs to be different from the information we have in both form and content. Such information needs to be *designed*.

VI. EXAMPLE 2: WHAT’S GOING ON?

The book “What’s going on?” with subtitle “A cultural paradigm change” [16] has been designed to serve as a showcase for *information design*. Since knowing what goes on means being properly informed, the title of the book suggests the main methodological issue which is taken up in the book, namely what should our informing be like so that we can truly know what goes on.

Although the techniques illustrated in the book are completely general, in this section we use the book as an

example to compare the *information design* approach to our common media informing. In this section TI denotes the common media informing, and ID the idea of informing which is represented by the Polyscopic Modeling methodology and illustrated by the book.

A. *The meaning of 'being informed'*

TI. Conventional media informing is focused on particular events that happened recently. Among those, the ones which tend to attract attention such as wars, catastrophes, murders, sports events and details of personal life of famous people are preferred.

ID. A more consciously directed use of information begins with the question 'What does it mean to be *informed*?' The answer given by the Polyscopic Modeling methodology and represented in this book is different, and in a sense even opposite from what is common in the media informing: To be truly informed we need to have a *gestalt* which is appropriate to our situation. And the *gestalt* is a *high-level* notion, which is very much in contrast with our common *low-level* informing styles.

The *gestalt* is the way we perceive and identify a situation as a whole. Familiar examples of *gestalts* are "the house is on fire" and "Grandfather is having a heart attack." It is clear that having the right *gestalt* is what knowing what goes on is all about. We may be aware of all the details (the stuffy air, the temperature rising) but if we don't know that the house is on fire, we don't really know what goes on. Furthermore, having the right *gestalt* is what makes the difference between an inadequate action (opening the window to let some fresh air in) and an appropriate one (calling the fire brigade).

Culture largely functions by giving us a large number of *gestalt*-action pairs. Owing to that, when we identify a situation correctly, we usually know how to handle it. This, however, functioned fine while our *culture* was a tradition and every type of situation which needed to be identified had a name. But what if now we may find ourselves in a completely new situation, one to which none of the *traditional gestalt*-action pairs might apply? If such a situation arises, the *traditional* informing can no longer work. How can we, then, ever be truly informed?

"By *designing* a new *gestalt*-action pair," is the answer given by the Polyscopic Modeling methodology. This situation and approach are illustrated in the book.

B. *Method 1: Stating a claim*

TI. Traditional media informing does not state and prove claims. It simply *describes* what goes on.

ID. In the book the new *gestalt* is created by modifying a traditional one.

The old *gestalt* is a house whose foundations have failed. There are "problems" in the house: cracks in the walls, uneven floors, the doors no longer fitting the doorframes. But patching those cracks and fixing those floors will not bring a solution. The foundations must be fixed first, and the house needs to be rebuilt on the new foundations.

Our new *gestalt* is called a *cultural paradigm change*. A *paradigm change* is to a *culture* as the foundations change (as a result of the foundations failing) is to a house. The main result of the book "What's going on?" is that what is going on in our time is a *cultural paradigm change*. There are visible and worsening problems in our culture: environmental, health, economic and others. But many of those problems, claims the book, are like the cracks in the walls of a house with failing foundations. The message of the book is profoundly optimistic: Our worsening problems do have a solution. But that solution involves rebuilding, not fixing. The solution involves working with the culture as a whole.

The procedure just described illustrates a general way of stating *results* in polyscopic modeling by creating a *pattern* [6]. A *pattern* is an abstract relationship. In polyscopic modeling *patterns* have a similar role as mathematical functions in physics, which also serve for stating results. A typical result in physics is that certain physical quantities stand in the relationship that is defined by a given mathematical function. A typical *result* in polyscopic modeling is that certain chosen quantities (*scope*) stand in a relationship that is defined by a given *pattern*. In this case, the *result* is that our *culture* and its *foundations* are in the condition as described by the given *pattern*. And that the consequence of this is that our own condition is as if we were living in a house with failing foundations.

C. *Method 2: Justification*

TI. Common media *informing* is a *low-level* and *flat* narrative.

This, however, does not mean that common media informing does not give us any *high-level* messages. It only means that those messages are *implicit*. For example, by focusing on such things as the stock market prices and the lives of the celebrities, our informing gives us an implicit message that money and fame are what is important. And by speaking about the events in a certain tone, it gives us the implicit message that our world is in principle functional and stable. In this way our *traditional informing* in effect does create a *gestalt*. That *gestalt* is, however, entirely different from the one given in the book. (To see this subtle but important point, imagine us living in a house with failing foundations. Imagine that there is a bulletin board near the elevator on the first floor where the housekeeper posts important messages to the tenants. If there all sorts messages there but nothing about the failing foundations, we would naturally believe that everything is all right even if we saw the cracks in the walls all over the place.)

ID. The described *gestalt*, which is the main result of the book, is carefully *justified*. In fact the whole book is conceived as a *justification* of the main claim.

The *justification* uses both theoretical arguments and references to experience. Here we first give an intuitive explanation of our *gestalt* and then briefly describe its *justification*.

It is not difficult to see why our *culture* may be thought of

as the house we live in. The *culture* is the environment which determines our living conditions even more than a house does. In fact, even the outlook of our physical houses is determined by our *culture*.

Although the *culture* consists of all sorts of things, we may imagine that it is made out of *information* as building material. Indeed, the *information*, understood in the general sense as defined in Polyscopic Modeling, is the blueprint which determines the outlook everything else in the culture. We can then imagine, metaphorically, that we are living in a house which is made of *information*.

Every piece of *information* and every element of the *culture* must be *founded* upon some value judgment, without which it would be eroded and replaced by other competing beliefs or ways of doing things. When we look more closely at our common ways of making value judgment, we see that none of them is suitable for discriminating what is solid from what is not in the domain where it is used. It follows that we are building our *culture* on a *foundation* which cannot really hold it.

These ideas are made precise in the book and carefully *justified*. The *justification* is considered to be the responsibility of the author. It is conceived as an experiment. If at the end of the book the reader is not convinced of the claim, the experiment has failed.

By postulating the meaning of the main concepts such as *culture*, *foundations of culture* and *cultural paradigm change*, the claims made in the book can be *justified* by theoretical arguments. The *foundations of culture* are, by definition, the *ideognomies*, or “what the value judgment is based on.” Three main *ideognomies* are identified. For each one it is shown that it is not suitable for *founding* the *information* which is currently *founded* on it. The theoretical arguments allow us to understand why those *ideognomies* are there and how they developed historically. We also see why they are deceptive.

By referring to common things in experience the claims can also be justified “experimentally”. This is done in the dialogs, which comprise the bulk of the book. Evidence is quoted showing that the *foundations* of our *culture* are failing, and that the *culture* is failing in its function because of that. Each dialog is developed around concrete people and events, presenting concrete evidence. Put together, those pieces make a mosaic, a clear picture of a *cultural paradigm change*.

It may seem strange that claims may be proven by using dialogs. The reason why this is adequate is the nature of the Polyscopic Modeling *high-level information*, which is an approximate, abstract representation of the detailed views. Different interpretations of the data are possible. They are even desired. The reader may choose his or her own interpretation. The goal of the *justification* is to show that under more or less any reasonable interpretation, the *high-level* claim is still valid. In the dialogs different opinions are contrasted with each other. The back-and-forth movement of a dialog resembles sifting, where what is small and ephemeral falls through, and what is large and common remains on top

and is elevated to a *higher level*. In this way, the main elements of the *cultural paradigm change gestalt* are created.

D. Method 3: Document structure

TI. Conventional media news articles are snapshots of the things happening with no attempt to bind them together into a single *high-level* view.

ID. The book “What’s Going On?” is composed as a hierarchy of modules. Different modules reflect different levels of detail and different points of view. Theoretical modules are distinguished from the concrete or experiential ones (which are the dialogs). The main claim is represented by an ideogram and given a distinguished place.

E. Content 1: A theory of culture

TI. The media informing has no provisions for creating a theory.

ID. Postulation as the manner of defining concepts allows us to create theories. In Polyscopic Modeling it is made clear that the theory is a construction, an abstract model which is justified or proven by a rational argument. Theories are useful or relevant to the extent in which they allow us to perceive and comprehend something in the practical world.

In the book a brief theory of *culture* and its *foundations* is given. This theory includes *functional* definitions of *culture*, *art*, *science*, *tradition* and several other key concepts and their relationships. The intention behind the *functional* definitions is to bind the concepts like “culture” and “science” not with the things out there, but with identifiable purposes. That allows us to secure that what is out there really fulfills a purpose, which is necessary in the *post-traditional culture*.

F. Content 2: Details

TI. In the media informing the details are the message.

ID. In the book the concrete details are used as a medium to convey the main message, which is the *gestalt* of the *cultural paradigm change*. While most of the book consists of the dialogs which talk about concrete events, trends and people, they actually serve as colors on a palette for painting the picture of the *gestalt*.

The dialogs also have an independent interest. They cover themes such as well-being, religion, values, science, alternative culture and others. Those themes are covered in a lively and controversial manner. The dialog format allows us to make controversial statements without compromising the credibility and the rigor of the argument. The dialogs are about concrete events and people. One is about Werner Kollath and his research. Another one poses the question “What remains of a piece of information when it is entrusted and conveyed by the tradition for a long period of time?” by talking about Christ’s message and the wars that have been fought in Christ’s name. Another dialog examines the pleasure acquired from the use of common objects by talking about what an armchair does to a person after several decades of sitting. The dialog which examines the rational part of our cultural foundations talks about Einstein’s message and the paradigm change in science and philosophy.

The themes covered in the dialogs, however, become even more interesting when they are seen as parts of the big picture of the *cultural paradigm change* they are composing, which gives them relevance and meaning.

G. Content 3: Vision of a new culture

TI. The media informing tells us what is, but usually not what is possible.

Even this is, in fact, not completely true. The media informing usually tells us only about the dark side of our reality. Many of us adjust to such negative world image by becoming mistrustful, afraid and cynical. In other words, we begin to doubt that positive change is really possible.

ID. One of the challenges take up in the book is not just to show that the *foundations* of our *culture* are failing (perhaps many people would agree with that) but also that those *foundations* can be reconstructed to serve as a foundation for a new and better culture. This is obviously necessary for completing the analogy with the house with failing foundations.

In the book the *art*, *science* and *tradition* are given a purpose by being defined *functionally*. In the corresponding dialogs, it is shown how such conscious approach to culture may lead to quite spectacular possibilities. It is shown what science, art and tradition might be if we don't just take them for what they are now, but if we turn them into versatile and productive "tools" for developing culture, and if we apply those "tools" there where they can make a large difference. In other words, the vision of a new culture is created by showing what may happen if we apply the *design* as approach to the rest of our *culture*, not only to *informing*. (In Polyscopic Modeling *design* is defined simply as "alternative to *tradition*.")

H. Message 1: Our problems do have solutions

TI. The present media style of informing leaves us powerless. We hear about problems, or we feel them between the lines, but we don't feel we can do something to correct them.

ID. The new *gestalt* gives us clarity and empowers us to act. We understand in what way our situation is unusual. We realize why we cannot just continue living as we did in a tradition. It becomes clear why trying to fix the problems will probably not work in the long run. But most importantly of all, we are allowed to see that there is a way of acting which is appropriate to the situation. And which may not only bring solutions to problems, but may also lead to surprisingly positive developments.

Here I would like to mention my personal *gestalt*, which is the result of a decade of working on the described issues in the described way. I believe that the change we are going through is similar to the change from the Middle Ages to the Renaissance. A completely new world view is being born, which will give us new values, ideas and preoccupations. I believe that our understanding of human life and culture is about to change as drastically as our understanding of the

natural world has changed since the beginning of Renaissance. This change will not only bring solution to our problems but also lead us into a whole new phase of development. In the book, this vision is explained in a more detailed and precise way.

I. Message 2: Conscious information founding is the essence of the emerging cultural paradigm

TI. By creating our world image in terms of the *traditional* concepts and ideas, our media informing keeps us bound to yesterday's thought-forms and solutions. But they are not necessarily the ones which can help us today.

ID. In the book the work on the *cultural paradigm change* is described as, in essence, re-founding all the elements of the *culture*, beginning from our very values. Those *foundations* are at this point invisible; we are using them without ever looking at them, and even without being truly aware of their existence. Our culture construction project has started with a very small "house," which we have recently been turning into a huge "skyscraper." At this point we are very high up in our construction, and we cannot even see the ground we started from. But how long can this sort of building continue? At a certain point we have to go back to the foundation of the whole thing and make sure that it can still hold our building.

In the book it is shown that conscious founding of information may do to our culture what conscious founding of houses has done to home construction.

J. Message 3: New informing is necessary for knowing what goes on

TI. By keeping our attention focused on attention-grabbing events on one hand, and by giving us an *implicit gestalt* that the world we live in is functional and stable on the other hand, our *traditional informing* is keeping us unaware of what really goes on.

ID. To see why *information design* may really make a difference, imagine us living in a world where information is created and used consciously. In that world it would be understood that not only our well-being, but even our sheer survival depends on us being correctly informed. Since this, before all, means having the right *gestalt* about the main issues, we would be extremely careful that our main *gestalts* are explicitly claimed and well founded, and we would consciously use those *gestalts* to orient our actions.

Without being able to define the *culture* functionally, without pointing to our culture's *foundations* by giving them a name, in a word, without *scope design*, it would not be possible to create the described *gestalt* and tell what really is going on. One of the ways of looking at the book itself is to perceive it as a carefully constructed argument in support of the claim that the approach to information that is represented by the Polyscopic Modeling methodology is, in our circumstances, necessary if we should be informed in the true sense of the word.

VII. CONCLUSION

We have shown that *information design*, as it is defined, developed and practiced within the Polyscopic Modeling methodology, is a new and distinctly different approach to information which allows us to resolve the large anomalies in our present-day informing. The reader may use our arguments to verify our claim that *information design* is to our common *traditional* informing as a new paradigm is to an old paradigm in the Kuhn's theory of scientific progress.

It is, however, tempting to conclude this article in a more *polyscopic* way, namely by changing the manner of looking and speaking and allowing it to become more metaphoric, non-conventional and intuitive. We now give a *high-level* summary of our discussion in terms of an anecdote. The hero of the anecdote, Mulla Nasrouddin, is a well-known anecdote character throughout the Middle East. According to the tradition, he was not a fool, as we might think when we read the anecdote, but a wise man and a Sufi teacher, who used humor and paradox to convey an educational message. By engaging in some obviously absurd activity and making people laugh at him, he would in fact make the people laugh at themselves, because his activity reflected something that we all commonly do and which is absurd in a similar but more subtle way. The following Mulla Nasrouddin anecdote will allow us to highlight the key difference between our two *informing paradigms*, the *information design* and the *traditional informing*.

Late one the evening Mulla Nasrouddin is kneeling under a street lamp searching for something. A man walking by stops and asks:

"What are you looking for, Mulla?"

"I have lost my watch," replies Mulla.

"I'll help you find it," says the man and they both bend down under the street lamp searching for the watch. Another man comes and the same thing happens, and then another, and soon there is a whole crowd of people bent down under the street lamp looking for Mulla's watch. When they have searched every inch of the space without finding anything, one of them asks:

"Wait, Mulla, are you sure you've lost your watch here, under this lamp?"

"Well, no," replies Mulla, "I've lost it down there, in the dark alley."

"But why are you looking for it here, then?"

"Because there it is dark and I cannot see a thing."

Our *traditional informing* is similar to that searching for the lost watch under a street lamp. When we are creating information within a traditional field and using the time-tested concepts, methods and presentation techniques of the field, we are working on a terrain which has been "illuminated" by the work of thousands of other people before us. There are many of us "bent under the street lamp" and we can explore every inch of the terrain. It is relatively easy to create facts which have excellent quality and great reliability. That approach to

information making has all the possible advantages and only one disadvantage: What we should be looking for is not necessarily "under our lamp."

Polyscopic information design is to our *traditional informing* as searching in the darkness is to searching under a street lamp. A *methodology* makes the "searching in the dark" possible. By broadening and supplementing the factual truth as criterion with *designed* criteria such as the *perspective*, according to which the purpose of information is to show us that which is hidden to our senses and in that way give us a correct understanding of a phenomenon or issue as a whole, the Polyscopic Modeling methodology orients our *informing* to "look into the dark." By calling its approach *scope design* and creating the methods that are required for *scope design*, the methodology provides in effect a flexible search light, which can be pointed into any dark area to illuminate whatever is there. By providing criteria and techniques for designing *high-level information*, it gives us a way to "climb to the top of the mountain," see the whole terrain, become aware of the large areas in our knowledge that are still left in the dark, anticipate what is hiding there and understand how relevant it is.

Our traditional "searching under the lamp" has given us superior insights. It has enabled us to develop science and technology and to improve our condition in many respects. There is no reason to doubt that our *traditional informing* will continue to give us profound insights and great benefits. The *traditional informing*, however, is no longer sufficient. In our *modern culture* we depend on information to give us a more complete vision. We must be able to "look into the dark" and see where we are going, and where we *might* be going. We have created our modern world by looking at what is visible under our "lamps" and by making choices based on such vision. The biggest dangers and the loftiest opportunities are now hidden there where our *traditional* vision cannot penetrate. By consciously creating the information which can show us what we need to see but we don't, and by consciously using such information to make choices, we may be able to make a far better use of technology and other resources, and ascend to a far higher level of well-being than what now seems possible.

Information design is not only an alternative approach to information and a new *informing paradigm* but also an emerging research field and a budding social initiative. Its development requires a contribution of a large number of creative people with a variety of backgrounds and talents. This article is an invitation to join the *information design* initiative.

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