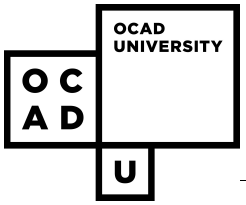

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Enabling systemic transformations with polyscopy

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Enabling Systemic Transformations with Polyscopy

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Abstract

It is shown how "the power to transcend paradigms" – which has been identified as "the most impactful way to intervene into systems" – can be radically augmented by a different *approach* to information. Instead of updating a conventional "reality picture", available insights are combined to compose completely new *high-level views* or *gestalts*, which co-exist and co-evolve through a dialog with one another and with the more detailed *views*. *Polyscopy* is described as a concrete instantiation of this approach. The Holoscope online platform is outlined as an application of *polyscopy* to enable (by illuminating the way) the *global* systemic transformation. This article is a strategy proposal and an invitation, extended to the interested members of the systemic design community, to take part in the *transdiscipline* we are developing around Holoscope, to evolve it continuously.

Polyscopy as an Approach to Information

> "Concepts that have proven useful in ordering things easily achieve such an authority over us that we forget their earthly origins and accept them as unalterable givens. Thus they come to be stamped as "necessities of thought," "a priori givens," etc. The path of scientific advance is often made impassable for a long time through such errors. For that reason, it is by no means an idle game if we become practiced in analyzing the long commonplace concepts and exhibiting those circumstances upon which their justification and usefulness depend, how they have grown up, individually, out of the givens of experience. By this means, their all-too-great authority will be broken. They will be removed if they cannot be properly legitimated, corrected if their correlation with given things be far too superfluous, replaced by others if a new system can be established that we prefer for whatever reason." (Einstein, 1916)

We are at a time in history when our knowledge of the world and level of technology are so advanced that one would think there is no problem that can't be solved, no issue that can't be addressed. And still this is clearly not the case. Wars and refugee crisis, poverty and financial crisis, and not least global climate change are current examples that our ability to evolve as a culture hasn't kept up with the speed with which our technology has developed.

So what needs to change? In principle we have the knowledge needed to begin an enlightenment-like change. What we don't know is how to put that knowledge together in the right way. The consequence is that, like grains of sand, important insights of our best minds fall through

our fingers as we try to grasp them – including those grains of gold with which we could buy our freedom and a prosperous future.

We propose that the problem is in our culture's informing practice which, like most aspects of our culture, has developed spontaneously to adapt to the current worldview. Our ancestors treated their culture's worldview as reality; they were socialized to accept their social order as similarly immutable as the natural one (Bourdieu, 1977). And it is still largely so (Berger and Luckmann, 1966). However the last hundred years of scientific and philosophical development challenges this view. Instead of seen as discovering reality, science is creating a multiplicity of "incommensurable" views (Kuhn, 1970). The traditional view is made obsolete.

We represent various related terms such as "communication", "knowledge" and "knowledge work" by a single one, "*information",* and ask: At this pivotal point in the evolution of our civilization, which we have chosen to call "the Age of Information", could there be a new *approach* to *information* that might help us answer to our new challenges – and also materialize our new opportunities? We answer this question positively by offering *polyscopy* as a model or *prototype* of such an approach.

A Dialogical Approach to Information

More than a century ago Max Weber observed, famously, that the modern humans were confined to live in an "iron cage" of rigid thought forms and institutionalized behaviors (Weber, 1994). And in 1958, Werner Heisenberg observed, similarly, that "the nineteenth century developed an extremely rigid frame for natural science which formed not only science but also the general outlook of great masses of people"; that "this frame was so narrow and rigid that it was difficult to find a place in it for many concepts of our language that had always belonged to its very substance, for instance, the concepts of mind, of the human soul or of life"; and that perhaps "the most important change brought about by [the results of modern physics] consists in the dissolution of this rigid frame of concepts." (Heisenberg, 2000)

Most interestingly, though, this "dissolution" did not yet result in a corresponding *broadening* of our conceptual frame, and of our mainstream worldview, which might have been expected.

The fundamental insights that have been reached during the past century offer us a way to do that.

Since antiquity, the quest for a suitable approach to *information* has been conceived as a search for a way to represent "the reality as it truly is". But during the past century we have found, in a variety of ways, that this quest had been founded on illusions:

> "During philosophy's childhood it was rather generally believed that it is possible to find everything which can be known by means of mere reflection. It was an illusion which anyone can easily understand if, for a moment, he dismisses what he has learned from later philosophy and from natural science […] Someone, indeed, might even raise the question

> whether, without something of this illusion, anything really great can be achieved in the realm of philosophic thought – but we do not wish to ask this question. This more aristocratic illusion concerning the unlimited penetrative power of thought has as its counterpart the more plebeian illusion of naive realism, according to which things 'are' as they are perceived by us through our senses. This illusion dominates the daily life of men and of animals; it is also the point of departure in all of the sciences, especially of the natural sciences." (Einstein, 1944).

Berger and Luckman showed that what we thought was reality was in fact "socially constructed" (Berger and Luckman, 1966). And Bourdieu showed just how much this social construction of reality made us vulnerable to subtle misuses of power – which we are still only learning to perceive, and have not yet even begun to learned to control (Bourdieu, 1992).

In *polyscopy* the reality assumption is consistently replaced by what Quine called "truth by convention" (Quine, 1936).

By convention, within the context of *polyscopy,* the substance of *information* is not reality but human experience. The purpose of *informing* (creation and use of *information*) is to share culturally relevant experiences. (Karabeg, 2012)

Instead of trying to "discover" and define what our concepts "really mean", within *polyscopy* we simply *postulate* their meaning – we state their definitions as conventions. We italicize concepts when we want to signal that they should be interpreted as *postulated* (*postulated* definitions may or may not be explicit).

A *postulated* definition becomes part of a *scope* – the way we look at experience, which determines our *view* (what we see and how we see it, and make sense of it).

Hence *polyscopy* may be understood as *the* alternative to the approach to *information* that is conceived as updating a shared worldview, in the manner of completing a jigsaw puzzle.

Free creation of *scopes* allows us to illuminate themes and issues from a multitude of angles. *Polyscopy* invites us to discover and share specific ways of looking that reveal what was previously hidden, and needs to be seen.

It is a core characteristic of *polyscopy* that *information* is created on a multitude of *levels* of generality or abstraction. Metaphorically (in *polyscopy* metaphors are extensively used), *high-level* views allow us to see forests, while *low-level views* allow us see trees. Hence *high-level views* allow us to find directions (a way to come out of a forest); *low-level views* allow us to follow a chosen direction (by navigating through trees).

This free creation of concepts, and of meaning, allow us to broaden Heisenberg's "narrow frame" and exit from Weber's "iron cage".

It is a fundamental credo of *polyscopy,* and also an insight that is reaching us from the experience in using it, that each issue has a natural *level* at which it may be understood and handled. And – as the comparison between "everyone carrying water out of their own basements" and "everyone teaming up and building a dam to regulate the flow of the river that causes flooding" – good, natural and lasting ways to understand and handle issues are often found on the subtler and all too easily ignored *high level*.

Since in *polyscopy* there is no reference to "reality", there is no – and there can be no – coercion into a shared worldview. *Polyscopy* is in that sense *dialogical.* An author offers a *scope* and a corresponding *view* to a reader as parts of a communication act. The reader's task is, by convention, to "look through" the offered *scope*, while suspending personal biases and habitual *views* and ways of looking. If the *view* that results is sufficiently similar to what the author claimed, the communication may be considered successful.

Consistently combining these ideas, the Polyscopic Modeling *methodology* is developed as a generalization of the "scientific method" – which preserves its advantages while avoiding its limitation.

An example will illustrate what all this practically means.

Figure 1: The Convenience Paradox *ideogram* points to a better way of making choices – by relying on suitably *designed information.* The more convenient condition is reached by taking the *informed* choice – and the seemingly less convenient direction (uphill).

The very first *prototype result* of *polyscopy* was a *pattern* (a *high-level* insight or result of a specific new kind) called Convenience Paradox (Karabeg, 1999).

As its ideogram might suggest (see Figure 1), the Convenience Paradox stands for a variety of situations where taking a seemingly more convenient direction (going left, metaphorically the way down the slope) leads toward a less convenient condition (you eventually must climb a much steeper slope) and vice-versa. By taking recourse to the Yin-Yang ideogram, and representing the way to a better condition as dark or Yin or subtle, it is suggested that the way to a better human condition cannot be seen or experienced directly, but needs to be illuminated by suitable *information.*

This *high-level view* is then made credible or *justified* by providing as *low-level views* a collection of experiences and insights emanating from a broad variety of the world traditions, both ancient (such as Buddhism) and contemporary (such as the school of therapy initiated by F.M. Alexander). Since their *experiences* and not their worldviews are considered to be of interest, their common traits are easily identified and combined to create *high-level* insights. At the same time, as *low-level views* they provide specific guidelines for reaching a better human condition.

The Convenience Paradox shows how *polyscopy* might be used to broaden the "narrow frame" and undo the damages it has caused to culture.

The project to recreate the institution of religion, which will be the next focus of Knowledge Federation (the community and institution *prototype* implementing *polyscopy* in practice, see the explanation below) is an interesting part and extension of the Convenience Paradox *prototype.* It can easily be shown, with a bit of *polyscopy*, that behind the worldviews that tend to divide religions from each other, and the rational-modern mindset from all of them, there is a shared phenomenological core. Again and again, the prophets and sages of the world traditions discovered and taught a way to an incomparably more enjoyable and dignified human existence – which can at the same time unite us into incomparably more humane and vital *societal* systems and communities. Yet practically every time the power interests, combined with the approach to *information* to which we are proposing an alternative, managed to turn their teaching into their very opposites.

A Design Approach to Information

In 1945 Vannevar Bush urged the scientists to develop technical means that would enable us to organize, make sense of and make available the extensive volumes of knowledge we are producing: "There is a growing mountain of research. […] The summation of human experience is being expanded at a prodigious rate, and the means we use for threading through the consequent maze to the momentarily important item is the same as was used in the days of square-rigged ships" (Bush, 1945).

In 1951 Douglas Engelbart heeded his call, having realized that the computer technology combined into a network, could serve as an enabler to such a development. In 1968, he and his SRI-based "A Research Center for Augmenting Human Intellect" showcased the technology that later led to personal computing, the Internet and the "revolution in the valley" (Engelbart, 1986).

Although this made him a most deserving and celebrated pioneer of the Age of Information, Engelbart failed to achieve the key part of his vision – to change our institutionalized communication as enabled by new technology, and demanded by our civilization's condition. In the sciences we still communicate by publishing articles; and we use the new technology to do that faster.

Polyscopy represents the alternative and remedial approach, where instead of inheriting what we do with *information*, we consciously *design* it.

Polyscopy takes advantage of its capacity to *postulate* the meaning of concepts to define *tradition* and *design* as a pair of antonyms, representing two alternative approaches to cultural evolution (Karabeg, 2005). Both are ways to systemic *wholeness.* But while in *tradition wholeness* emerges as a result of spontaneous evolution, through trial and error and "the survival of the fittest", *design* takes care of it consciously.

Design must take the place of *tradition* when *tradition* cannot be relied on.

The approach of *polyscopy* is defined as "*information design* by *scope design*". *Information design* is the result of applying the *design* approach to information – by considering *information* as a system within a system; and creating and evolving *information* and what we do with it as it may best serve its purposes within the system, relevant knowledge, and available technology. *Scope design* is the *design* of multiple "ways of looking", as it was described in the preceding section.

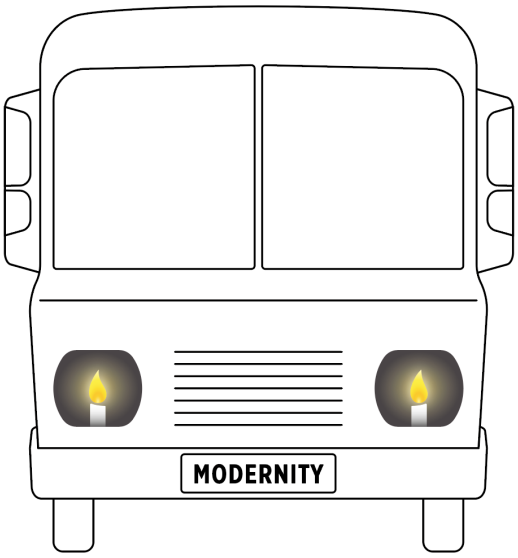

Figure 2: The Information Design Challenge *ideogram* represents our civilization or *culture* as a bus, and our creation and use of *information* as candle headlights. It illustrates that our traditional *informing* is not fulfilling its important role of illuminating the way of our culture.

By freeing *information* from the *tradition* and linking it with the purpose, a foundation is made for creating completely new methods, document formats, ways of communicating etc. Our *information* and what we do with it are allowed to evolve by accommodating the changes in our situation, our technology, and our knowledge.

An example will clarify these ideas.

We are developing an online platform called Holoscope, which will showcase *polyscopy* by allowing it to show a completely new way to handle contemporary issues. Holoscope points to an astounding defect in our communication. It is shown that the most valuable insights reached by our best minds tend to be ignored when they fail to fit into our *traditional* worldview. And that when we *do* provide a way to combine them together into a *new* worldview, the likely consequence will be a Renaissance-like change. Holoscope defines itself as "an evolving roadmap of an impending Renaissance".

Holoscope evolves this "roadmap" through a mediated online dialog; and by using a *designed* methodology for turning specific insights into *high-level views* or *gestalts*. The goal of the Holoscope platform is to help us develop the ability to acquire completely new *gestalts* by combining basic insights from a variety of fields and traditions.

In addition to the public dialog, through which the content of Holoscope is discussed and updated, there is a second *dialog* – through which the Holoscope itself, as a *prototype* of *designed* communication, is continuously recreated. In what follows we outline the current design of Holoscope. We also extend an invitation to the interested members of the systemic design community to join the team or *transdiscipline* we are developing to continuously design Holoscope.

A Prototype

Polyscopy is a *prototype* of an entire *informing* (creation and use of *information*).

A question may be asked: If *information* is not expected to give us an "objective reality picture", then what is really its meaning? In what way should we conceive of, and interpret, a "piece of *information*"?

The answer is of course that *information* is to be interpreted as a subsystem within its *systemic* context – whose purpose is to make the larger system or systems better or more *whole.*

A *prototype* is a characteristic unit or kind of *information* in *polyscopy.* Like conventional "pieces of information", *prototypes* represent and communicate creative insights, ideas and whatever else may be desired, either by stating them explicitly, or by embodying them as parts of its design. At the same time, a *prototype* is immersed in systemic reality, acting upon it to effect change, while gathering further insights – about how the *prototype* meets reality; and how it may need to be changed to better achieve its goals.

Hence a *prototype* simultaneously serves as:

- a model – which represents ideas and design decisions in a way that can be copied or improved
- an intervention – which aims to change the traditional order of things and practice
- an experiment – which tests and shows what works in practice and what needs to be improved

It is considered good practice to organize a multidisciplinary community – a *transdiscipline* – around a *prototype,* representing relevant kinds of expertise and stakeholder interests. The task of the *transdiscipline* is to update the *prototype* continuously, so that it may represent the state of the art in relevant areas of interest, and the changes in the systems or environments in which the *prototype* has its roles. In this way *prototypes* continue to evolve – by bringing relevant insights and interests into systemic designs and practice. We call this process *knowledge federation*.

The *polyscopy prototype* consists of a large number of smaller *prototypes*, of which Holoscope is an example. Knowledge Federation is another *prototype* – of an institution practicing *polyscopy.* Knowledge Federation has created a portfolio of systemic or institutional *prototypes* in science, public informing, education, religion and other areas (Knowledge Federation, 2016).

This article too, despite its traditional format, is a *prototype.* Its purpose as an intervention is to submit the *polyscopy prototype* to the systemic design community; and to invite its interested members to take part in the *transdiscipline* we are developing around it.

A Paradigm

In 1981, the Founding President of The Club of Rome Aurelio Peccei summarized the first decade of this international think tank's investigation into the future prospects of mankind by concluding "it is absolutely essential to find a way to change course" (Peccei, 1981). What course of action might be impactful enough to enable us to "change course"?

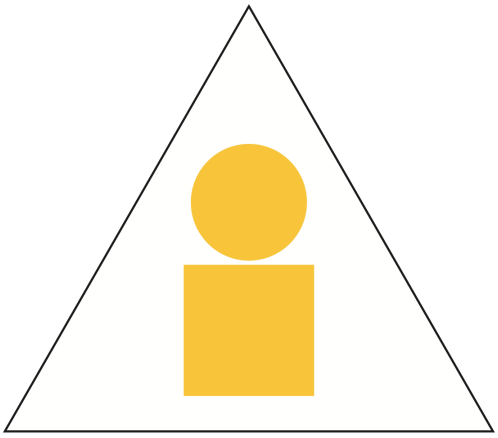

Figure 3: The Polyscopic Information *ideogram* illustrates that information (represented by the yellow *i*) is only whole when it consists of both deep and detailed information (the square) and the essence of this information communicated in an engaging and moving way (the circle). Only then information can help us to climb out of the metaphorical information jungle to the mountain top (represented by the triangle), which can contribute to a gestalt change (described in detail below).

The Polyscopic Information *ideogram* suggests an answer: a different, *designed informing* can help us find and follow a different course! And we have seen how the *polyscopy prototype* provides evidence to support this conclusion.

Donella Meadows' insight – that the most impactful way to intervene into systems is "the power to transcend paradigms" (Meadows, 1999) – will help us understand more precisely the strategy that the *polyscopy* proposal is pointing toward. As we have seen, *polyscopy* allows us to transcend the approach to knowledge that relies on a fixed paradigm (updating a fixed worldview by an inherited set of methods), by allowing new worldviews and methods to be continuously created.

Furthermore, *polyscopy* is a paradigm in its own right – it is a way to resolve the perceived anomalies in our work with *information*, and resume progress.

And so we conclude by offering the course of action pointed by *polyscopy* as *the natural* answer to Peccei's quest: Being a *paradigm*, *polyscopy* is something that needs to be in place to make our knowledge work consistent with the current state of our knowledge.

And when it is in place, *polyscopy* will give us the power to transcend the current paradigm, and any other paradigm, by continuously evolving our worldviews and our ways of creating them.

The Method: A Mountain-Building Kit

As we have seen, polyscopy is a prototype of a whole other approach to communication. In the context of change, it enables change by creating a *high-level* view of fundamental pieces of knowledge, golden insights, that otherwise people don't know how to fit in. Instead of trying to fit

information and communication "bits and pieces" into an existing worldview – a gestalt – polyscopy creates a way to combine pieces to communicate a whole new one – a new gestalt: "A gestalt is a way to understand a situation or phenomenon as a whole. 'Our car is having a flat tire' is a textbook example of a gestalt. A gestalt that is appropriate to a situation points at an appropriate course of action. By convention, having an appropriate gestalt is tantamount to being informed." (Karabeg, 2012). A new gestalt is the first thing you need to have to change systems, especially on a large scale.

To achieve a new gestalt, we need to be able to connect the fundamental pieces of knowledge of the world together and making them relate to each other. The methodology extends into a method for systemic change, the need of which is revealed by the gestalt.

The challenge with connecting large amounts of information, however fundamental and important, is that it will make the metaphorical information jungle even thicker than it was. So what we need is a mountain which allows us to climb out of the jungle and get the overview. This will provide the big picture which lets us sort the massive amount of information and weave the fundamental pieces into simple *high-level* views. Polyscopy is a prototype of a 'mountain-building kit'.

This 'climbing' to the metaphorical mountain top is made possible by a set of structuring devices, analogous to book chapters, table of contents etc. in conventional text formating, which allow for 'growing the information upwards'. By weaving them together, a dramatic effect is achieved that highlights meaning. The structuring devices are:

1. *insights* – the grains of gold
2. *vignettes* – communication of insights
3. *threads* – combination of insights
4. *patterns* – weaving threads together
5. *ideograms* – communication of patterns/issues
6. *aspects* – shows different sides of an issue
7. *gestalt* – the worldview-changing view from the top of the mountain

Concluding remarks

In his 1924 summary of gestalt theory, Max Wertheimer points to "the emergence of problems which defied solution by traditional analytic methods" (Wertheimer, 1925). He argues that the root cause is in those very methods, in which gestalts are supposed to spontaneously emerge from the details. But it is the other way around – the gestalt is the substance, which *gives* the meaning to the details, he observes, just as a melody gives the meaning to the notes: "We hear a melody and then, upon hearing it again, memory enables us to recognize it. But what is it that enables us to recognize the melody when it is played in a new key? The sum of the elements is different, yet the melody is the same; indeed, one is often not even aware that a transposition has been made." (ibid.)

We have proposed *polyscopy* as a way to enable the creation of completely new gestalts, and in that way handle the kind of issues that require new gestalts.

Holoscope is being created as a *prototype* to put polyscopy into actual practice – by developing a "roadmap of an impending Renaissance-like change".

We are hereby inviting the interested members of the systemic design community to join the team or *transdiscipline* we are developing to continuously design Holoscope.

References

Berger, P. L. and T. Luckmann (1966). *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, Garden City, NY: Anchor Books.

Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge University Press: Cambridge, UK.

Bourdieu, P. (1992). *Language and Symbolic Power.* Cambridge, UK: Polity Press.

Bush, V. (1945). As We May Think. *The Atlantic*. Retrieved from http://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/

Einstein, A. (1916). Ernst Mach. *Physikalische Zeitschrift, 17*, 101–104.

Einstein, A. (1944). Remarks on Bertrand Russell's Theory of Knowledge. *Einstein Archives Online*. Retrieved from http://alberteinstein.info/vufind1/Record/EAR000034151

Engelbart, C. (1986). *A Lifetime Pursuit – A brief history of Doug Engelbart's work*. Doug Engelbart Institute. Retrieved December 18, 2016, from http://www.dougengelbart.org/history/engelbart.html

Heisenberg, W. (2000). *Physics and Philosophy*. London, UK: Penguin Classics.

Karabeg, D. (1999). Polyscopic study of a basic cultural pattern. In Aaerts, D., H. van Belle, H. and J. van der Veken, (Eds) *World Views and the Problem of Synthesis*. Boston, MA: Kluwer.

Karabeg, D. (2005). Design Is an Alternative to Tradition. *Proceedings of the 6th European Academy of Design Conference.* Bremen, GE.

Karabeg, D. (2012). Design Epistemology. *Information*, *3*(4), 621–634.

Knowledge Federation (2016). Knowledge Federation Prototypes. Retrieved from http://www.knowledgefederation.org/Knowledge_Federation_Prototypes

Kuhn, T. (1970). *The Structure of Scientific Revolutions.* Second edition. Chicago, IL: University of Chicago Press.

Meadows, D. (1999). *Leverage Points: Places to Intervene in a System*. The Sustainability Institute. Retrieved from http://donellameadows.org/wp-content/userfiles/Leverage_Points.pdf.

Peccei, A. (1981). *One Hundred Pages for the Future: Reflections of the President of The Club of Rome*. Oxford, UK: Pergamon Press.

Quine, W.V.O. (1936). Truth by convention. In *Philosophical essays for Alfred North Whitehead*. New York: Longman, Green, & Company Inc. 77–106.

Weber, M. (1994). *Political Writings*. Cambridge, UK: Cambridge University Press.

Wertheimer, M. (1925). Über Gestalttheorie [About gestalt theory]. *Philosophische Zeitschrift für Forschung und Aussprache, 1*, 39–60.