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# De-sign Thinking for mini-innovation: a way to re-think technology in MCP

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**Abstract:** *De-sign thinking is a way of thinking in meta-capitalism that freely brings to light innovation with significance and value in things for the human being. Significance and value in things are driven by a paradigm within a social system of production. Mass Customization and Personalization is not simply another business model within capitalism, but on the contrary, it is the post-industrial value creation paradigm in meta-capitalism. Significance and value of technology for the humanity in the Mass Customization paradigm is born through De-sign thinking and open-to-innovation instances coined as mini-innovations. Phenomenology forms the basis for this discourse.*

**Key Words:** *Mass Customization, modernism, post-industrial, De-sign Thinking, Phenomenology*

## 1. INTRODUCTION

Mass Customization and Personalization (MCP) has been regarded, both among scholars and practitioners, as a novice business model, implementation of which will increase and sustain competitiveness in the already globalized markets. This view has led research within MCP mainly to configurators. Configurators though were not born with the emerge of MCP and MCP cannot and does not exist because of them. Configurators do not create new significance and value in things, but based on the design of the things, replace the human being in fitting subassemblies according to a predetermined and prefixed logic. It can be argued that configurators simulate mass customization, within the economic system of mass production and economies of scale, suitable only for mass configuration.

However the economic system governing mass production has entered the phase of advanced ageing and has reached its sunset. The era of meta-capitalism, an era characterized by the economy of one instead of mass economy, appears as its successor [1]. MCP displaces mass production in post-capitalism[2:13,23]. This difference is profound and is almost a dichotomy. It is profound because customization in the capitalistic, industrial age, is seen and confined within the non-essential features of a product claims Simondon, a French philosopher mainly known for his theory on individuation [3], [4]. However in the post-capitalistic, post-industrial age, customization becomes an essential necessity for everybody not only regarding products and services. Significance and value creation in the meta-

mass production paradigm, in the postmodern age, MCP requires new technology to produce things on demand, things that have not reached their industrial coherence beforehand. Simondon taking the example of a car writes [2:24], [3:10]:

*The type of relations between these non-essential aspects and the true nature of the technical type is negative: the more a car must answer the critical demands of the user, the more its essential characteristics are encumbered by an external constraint; the body-work becomes weighed down with accessories and the shape no longer approximates stream-lined structures. The custome-made feature is not only non-essential but works against the essence of the technical being, like a dead weight imposed on it from outside.*

Furthermore, what Simondon uncovers in his philosophy is a new way of understanding technology but at the same time, I would add, undestanding technology in the industrial age and millieu. He suggests that humanized technology is the technology that brings value (quality) to the society and to the individual member of that society [3], [4]. In this respect he is in line with Heidegger [5] when he states about technology:

*Our relation to technology will become wonderfully simple and relaxed, if we let technical devices enter our daily life, and at the same time leave them outside, that is, let them alone, as things, which are nothing absolute but remain dependent upon something higher.*

What Heidegger means by stating that technical devices remain dependent upon something higher, is the fact that things are no longer viewed only in a technical way but the production and use of machines demands of us another relation to things, that it is not a meaningless relation (Sinnlose Beziehung). Here we should point out that, the german word *Sinn* has a dual translation. It can be translated with "sense" as meaning but also as feeling, and it can be both at the same time, a thinking and aesthetic or living experience.

Based on the above and the assumption that MCP is the new paradigm for the post-industrial age, it is imperative to find a new way to re-think technology that produces technical things that are meannigful that have significance and value to the human being. This is not a

trivial issue and not a issue that can be treated through the development of 3D printers as these machines are not machines for producing MCP technical things and non-technical things. They are “configurators” in space for things of a predetermined model or image. They can transform a copy like a photograph into an thing in space, or to materilize holograms, that are images of nonthingness. They produce material simulacra. Simulation though is an as-if reality, it is never reality and therefore these objects are meaningless to us, the significance and value of which are very questionable.

Re-thinking technology in meta-capitalism involves three steps: the first step is to examine the essence of MCP in the post-industrial reality; the second step is to investigate how De-sign thinking [6], [7] fits in MCP; the third step concerns the concretization of a topos as a new autochthony with signification and value regained for the human being in the post-industrial era. Here the principal question is addressed: how through thinking, topos is De-signed and at the same time, how through De-sign, topos is thought of. The paper is organized in three sections reflecting the corresponding steps mentioned above.

## 2. THE ESSENCE OF MCP

Post-industrial means post-scientific, in other words transcending science as science is understood in modernism and analytic philosophy, for example positivism and logical positivism. A different science is needed to address the post-industrial age. A science caring for the human and the humanity and not a science for generally accepted laws and principles. That will lead to a different type of technology avoiding calculative thinking, looking towards a science that can think to state Heidegger [8].

The different science governing mass customization is the science that overthrew mass production, which massively changed the world based on scientific production. However although mass production helped immensely to humanize the world, it dehumanized it later accomplishing that with the help of science. Human choice is not in the hands of the society any more it is rather in the hands of oligopolistic financial institutions and the economic centers that decide for the people but without them. This is what industrialism and modernism is about today. We are now at a stage where modernity has changed reality and, if this reality has to change once more, we have to accept the fact, that we are now at a stage where we need to revitalize modernity in the light of the post-industrial era. For modernism in the post-industrial era needs a strong revitalization. The old modernism in the post-industrial era cannot operate any more. This new modernity should not be called post-modernism, since the principles and the ideals of modernity are still valid. Post-modernism would imply that these ideals and principles are not valid any more. What therefore obvious from this discussion is that although we are in the post-industrial era, looking mainly at how significance and value in things come to light, we are set out for a new modernity.

In the new modernity the dissociation and the dichotomy existing and propagated in modernism

between technical activity and aesthetic activity is alleviated. This is the essence of MCP that contains human reality in whatever thing comes into existence.

It is argued here that mass customization is right on this path. Mass customization as the new paradigm for significance and value in the post-industrial era, fits the principles and ideals of modernism. What is needed though is the new science as a substrate upon which mass customization will flourish. To flourish means to be re-exhilarated of freedom, of choosing, of being the product of one’s own hand rather than some “Other”- whether that be for example mass-media, political parties or financial institutions - that is the new modern approach to today’s Reality. De-sign thinking is the new kind of thinking that the new science for mass customization will be built upon.

The new modernity establishes the unity between technics and aesthetics in order to respond to the Sinn (meaning and feeling through significance and value). It does so by reconciling the human being with its environment. Heidegger has already expressed this unity through the use of the term *Dasein*. A technical thing can be the result of a technical activity, while an aesthetic thing is the result of an aesthetic activity. Although the discussion on the nature of aesthetic things and technical things is an old and long one [3], [9] these discussions are taking place within the framework of modernism and post-modernism. In meta-capitalism we argue that there is no difference in the way these types of things are created, a claim that lies outside of the scope of this work. Gaining insight, it can be said that, aesthetic things challenge directly the human experience, while technical objects do that indirectly, through the forces of nature. The result of the activity though is not the same. Technical things can only indirectly experienced by the human being when they are in operation, in other words with the intermediation of nature and its forces. Out-of operation these objects have no real meaning and utility, no real significance and value. Heidegger uses the term *Bestand (standing reserve)*, in order to describe the existence of technical things during their non-operation [10].

In meta-capitalism “anything goes”, though not under the scrutiny of scientific method and rules or procedures, to cite Feyerabend’s famous book *Against Method* [11]. Feyerabend became famous for his rejection of the existence of universal methodological rules [12]. In mass customization the non-rule of almost “anything goes” comes into existence through De-sign thinking and the repetition of open-to-innovation instants coined here as mini-innovations. Each instant therefore is an open-to-innovation world, where one instant must be able to commit its successors and, a decision once taken and an action once begun. To remind Descartes who stated that: conservation demands a power as great as does creation. This is a realistic notion of the instant. De-sign thinking withdraws something unsolicited new from the darkness of mystery through eliminating of each sign that opposes un-concealment of knowledge. Thus it displaces the body-of-knowledge (BOK) from a topos of mystery to a topos of un-concealment. Mini-innovations are coming into existence through a repetition of instants of conserving what has been dis-closed through

approaching and creating its successor through distancing from what is revealed each time from the thing [6]. Such a thing has true meaning and at the same time provides value as utility as well as aestheticity. It becomes concrete and individuated through displacements effected by mini-innovations. Mini-innovation is the motivation, the driving force (αιτία) for differentiation of the object in a repeated manner. Differentiation takes place in form of a displacement of the object from an intermediate topos to another intermediate topos becoming concrete through the corresponding body-of-knowledge and the physical body in space. Any instant in this displacement describes a concrete and individuated object. Individuation reaches steady state when differentiation on both, true meaning and utility are reached according to the judging body. There is no end in this displacement of the object-in-topos. For the new modernity, technicity is not separate from aestheticity. This it is not a matter of choice it is rather a matter of perceiving the world as a humanized one. Technicity that humanizes itself can only be seen as part of challenging the nature but not conquering it, where the creator concretely and as an individual contributes the most. Technology in the new modernity re-captures the old meaning of Art from the Greeks (Τέχνη, \*technae), meaning knowledge. The thing in both cases is the creature of a spontaneous praxis, not necessarily one of a predetermined concept.

### 3. DE-SIGN THINKING AND MCP

Design is a relict and a religion of old Modernism. Planning and scheduling, the execution tools of a powerful Will, are based on design. The Will to change the world by using design as a dogma led to catastrophes for the humanity as modern history can prove [13]. It would violate the scope of this work to deal with the different flavours of modernism. However, the claim here is that in a new modernity rejecting the chimera of changing by design, opens up another way, the way of displacing things as opposed to change them. Displacement is not the result of changing something that is projected (πρόβλημα), but it is the result of an activity caused by the forces of interaction between the human being and the malleable reality. This displacement creates a new topos for the thing or the object in an eternal fashion. In this way individuation is invoked. The notion of displacement is old. New languages have been born due to the displacements of letters. Design looks at a problem to be solved. It looks at it as an object (Gegenstand), something that stands opposite a point of view (προβλημα) something that is projected. De-sign thinking stands within the mystery, falls towards the things with no projection involved, no willing, no calculative thinking. It is a way of thinking, aiming at stimulating creation of topoi where facts and values are repeated in their difference [6]. De-sign thinking displaces things from the darkness to the light.

According to Heidegger [5], questioning is the belief of thinking. Questioning claims Heidegger, is building on a path. This path is the path of thinking. Heidegger in Gelassenheit [13] (Discourse on Thinking) distinguishes wisely between two types of thinking: calculative

thinking and meditative thinking. Science does not think in the way thinkers think claims Heidegger [5]. As mentioned above, the term technology includes the term τέχνη (\*technae), which in the philosophy of the Greeks means knowledge. Science is systematically organized knowledge that is basically a result of calculative thinking. Calculative thinking though does not ask for the meaning (Sinn) of technology it produces. Organizations in the industrial era competed and still are mainly using calculative thinking, the way science thinks. Technology in capitalism was and still is based mainly on this type of thinking that was certainly indispensable, but it remains true that, this is a special kind of thinking put under pressure in meta-capitalism. Heidegger [13] in his Discourse on Thinking says about calculative thinking:

*Its peculiarity consists in the fact that whenever we plan, research, and organize, we always reckon with conditions that are given. We take them into account with the calculated intention of their serving specific purposes. Thus we can count on definite results. This calculation is the mark of all thinking that plans and investigates. Such thinking remains calculation even if it neither works with numbers nor uses an adding machine or computer. Calculative thinking computes. It computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself. Calculative thinking is not meditative thinking, not thinking which contemplates the meaning, which reigns in everything that is.*

Further in the same script Heidegger claims:

*Meditative thinking demands of us not to cling one-sidedly to a single idea, nor to run down a one-track course of ideas. Meditative thinking demands of us that we engage ourselves with what at first sight does not go together at all.*

This is a completely different way than the one-track, often one-sided way of calculative thinking. It is clearly not a process. Heidegger calls for a different way of behaving towards technology. He calls for a simultaneous yes and no to technology, because as he mentions:

*Our relation to technology will become wonderfully simple and relaxed, if we let technical devices enter our daily life, and at the same time leave them outside, that is, let them alone, as things, which are nothing absolute but remain dependent upon something higher.*

He calls this comportment toward technology which expresses “yes” and at the same time “no” by an old word “releasement toward things” (Gelassenheit zu den

Dingen). He claims further that having this comportment things are no longer viewed only in a technical way but the production and use of machines demands of us another relation to things, that it is not a meaningless relation. As an example he mentions, proper for his time, that farming and agriculture have turned into a motorized food industry. Furthermore, he claims that the meaning pervading technology hides itself. But if we explicitly and continuously heed the fact that such hidden meaning touches us everywhere in the world of technology, we stand at once within the realm of that which hides itself from us, and hides itself just in  $\square$  approaching us. The one, which shows itself and at the same time withdraws, is the essential trait of what Heidegger calls the mystery. Heidegger calls the comportment, which enables us to keep open to the meaning hidden in technology "openness to the mystery" (*Offenheit für das Geheimnis*). Releasement toward things and openness to the mystery belong together, he adds. They grant us, so Heidegger, the possibility of dwelling in the world in a totally different way and he suggests that they promise us a new ground and foundation upon which we can stand and - endure in the world of technology without being imperilled by it. According to Heidegger, releasement toward things and openness to the mystery give us a vision of a new autochthony, a new topos we would say, which someday even might be fit to recapture the old and now rapidly disappearing autochthony, especially in today's mobile society, in a changed form. By considering technology the problem and at the same time the solution to the problem, it is exactly the right attitude for approaching this kind of thinking, that Heidegger calls meditative for a "yes" and "no" to technology and at the same time open to the mystery that technology carries within itself. It is the path to arrive at innovations that support societies to develop and advance instead of going against them. Science must expand itself to account for this kind of thinking in order to re-form scientific knowledge.

Calculative thinking follows and subordinates itself to meditative thinking. If only calculative thinking prevails, then the consequence is that in the discourse of the competition organizations will be slowly but steadily driven into the turmoil of losing their topos, their place. Without meaning calculative thinking is easy to drift away to fly from thinking. One-track, calculative thinking leads to thoughtlessness, and the organization might lose its autochthony, its topos [6]. Therefore, topos for an organization is its capability to meditative thinking. This is important for organizations because innovation will come from primarily meditative thinking, and not from calculative thinking alone.

Considering the above there is strong evidence that, meditative thinking and innovation are tightly joined. Based on that fact we argue that innovation is the result of thinking, especially meditative thinking. Especially in the so-called creative industries "learning to think" is an absolute necessity. Heidegger [5] begins with the following:

*In what is named thinking we arrive, when we think ourselves. In order that such an effort succeeds, we must be willing to learn*

*to think. (In das, was Denken heißt, gelangen wir, wenn wir selber denken. Damit ein solcher Versuch glückt, müssen wir bereit sein, das Denken zu lernen).*

In the next section we will support the claim that De-sign thinking is the craft to hear the appeal of what is most thought provoking. Openness-to-innovation is a prerequisite for open innovation in the new modernity, based mainly on meditative thinking (*Besinnung*).

#### 4. TOPOS CONCRETIZATION

Let us now return to the principal question on De-sign thinking: how through thinking, topos is De-signed and at the same time, how through De-sign, topos is thought of. This question can be answered through a meditative way of thinking, called openness to the mystery of things.

Figure 1 illustrates what is meant by openness to the mystery of things. By approaching a ball pen with the lens of a camera, the mystery hidden in a thing appears. It appears something that has nothing to do with the actual object of the ball pen. This is a visible example, a way of simulating an as-if reality, openness to the mystery of things.



Fig. 1. Openness to the mystery of things

In the above example through the openness to mystery hidden in the ball pen a kind of topos appeared (de-signed), while at the same time looking through the visible signs that appeared one may think how this topos has been unlocked. Unlocking of topos though, would never have happened if the thinker would not have taken simultaneously a remote and yet close up position to the thing, if he or she would have not released him/her-self into it. Releasement and openness to the mystery of the thing belong together. Positioning to the thing means to challenge the thing in order to reveal itself to open up its mystery, to reveal its topos. There is useful experience to be gained using meditative thinking. Marketing for example, challenges the market through positioning a value proposition into it. Challenging is a way of revealing. Through challenging, something emerges that has form within the space of the market, and when that happens the organization topos opens up to the world. Although topos is the meaning of modern marketing, itself has nothing to do with marketing.

In this way *open innovation* turns into *open-to-innovation* on a personal basis [6]. There is no obligation or precondition for co-creation, as it is widely defined today in the existing scholar and practitioner literature. For any one is capable to innovating [6] and any one can be open to innovation. Through mini-innovation, technology can be re-thought and revolutionized. A co-

creation environment, which involves the user in the creative activity entangled in a calculative thinking environment, is substituted by a real open and free from passivity or activity of the subject, non-willing compartment to innovation, De-sign thinking topos. Such freedom is a condition for reaching real releasement and openness to the mystery of things in post-capitalism.

However, scholar research on design thinking goes in a completely different direction. For example at Hasso-Plattner-Institut (HPI) research on the issue of design thinking looks at synthesizing ideas and goals by the team that is co-creating, with the intention to find something new, something ground breaking, and an innovation that sells [15]. In this research design thinking is approached from the fundamental calculative thought that is based on hunting-gathering pattern that looks at solving a certain problem. It distributes roles for hunters and gatherers as a sort of key experts and at the same time co-creation is performed through a limited number of potential customers. When the idea appears, it follows the normal and usual way of planning, controlling and executing. Ideas although may be many, they do not get all through to the surface depriving the organization from thinking and learning to think and therefore reach the state of becoming *open-to-innovation*. The main difference lies in the way design thinking research is concentrated on innovation through co-creation based upon the so-called user experience that is directed towards living and not thinking experience. The underlined philosophy of user living experience is based on the observation of the user by external agents [16] and not the provocative thought of the individual, independently whether he or she is a user or not. Open innovation in this case is closed, solicited by the users or any type of closed formation, a formation that does not fit the challenges of the post-industrial, multicultural, multitasking and multidimensional society, where significance and value prevail against anonymity and productivity.

## 5. CONCLUSION

Mass Customization and Personalization is the post-industrial value creation paradigm in meta-capitalism. It is claimed in this paper that De-sign thinking is a way, both in terms of path and methodology of thinking that fits seamlessly in the post-industrial era, that freely brings to light significance and value in things to the society. This kind of thinking is different from the kind of thinking that leads to innovation for mass production within its corresponding social system of production. Significance and value of technology in the Mass Customization paradigm is born through open-to-innovation instances coined as mini-innovations.

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