Re-shaping Organizations through Digital and Social Innovation

PROCEEDINGS
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Edited by
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The Italian Association
on Information Systems and this conference

itAIS (www.itais.org) was established in 2003 as the Italian Chapter of the Association for Information Systems (AIS - www.aisnet.org) and has since then been promoting the exchange of ideas, experience, and knowledge among both academics and professionals committed to the development, management, organization and use of information systems.

The itAIS conference is the major annual event of the Italian Information System community and it is thought as a forum to promote discussions and experiences exchanges among researchers in the field, both from the academy and the industry. Being the current the twelfth edition, in 2015 itAIS was held in Rome. The previous editions took place in Genova on 2014, Milan on 2013, Rome on 2012 and 2011, Naples on 2010, Costa Smeralda on 2009, Paris on 2008, Venice on 2007, Milan on 2006, Verona on 2005, and again Naples on 2004.

ItAIS 2015 aims to bring together researchers, scientists, engineers, and doctoral students to exchange and share their experiences, ideas, challenges, solutions, and research results about all aspects related to reshaping organizations through digital and social innovation. The conference includes 16 tracks: (01) Organizational change and Impact of ICT; (02) Accounting Information Systems; (03) Advanced ICT support for innovation strategies, management, and implementations; (04) Human-computer interaction; (05) Information and Knowledge Management in the Big Data Era; (06) Continuous Redesign of Socio-Technical Systems; (07) Digitalization trends in Human Resources Management; (08) Participation in the polis and in the organization; (09) Sociomaterial interactions: innovative perspectives in the analysis of organizational related phenomena; (10) e-Services, Social Networks, and Smartcities; (11) ICT-enabled innovation in public services: co-production and collaborative networking; (12) Organizing the IT infrastructure in the networked economy: strategic and organizational challenges; (13) IT-based innovation in Healthcare; (14) IS (lost) in the Cloud; (15) The Role of Information Systems in Corporate Social Responsibility; (16) Internet of Things: exploring tensions in global information infrastructures.

The conference took place at the Department of Management, Sapienza University on October 9st – 10th, 2015 and was organized in 6 parallel sessions.

The participation success that has been registered in the previous editions is confirmed this year. The conference attracted more than 100 submissions from Italian and foreigner researchers. Among them, more than 90 contributions have been accepted for presentation at the conference following a double blind review process. Among

them, 28 are published in this book, while the other will appear in a volume of the Springer Series *Lecture Notes in Information Systems and Organisations*.

We would like to thank all the authors who submitted papers and all conference participants. We are also grateful to the chairs of the sixteen tracks and the external referees, for their thorough work in reviewing submissions with expertise and patience, and to the President and members of the itAIS steering committee for their strong support and encouragement in the organization of itAIS 2015. A special thanks to all members of the Organizing Committee for their precious support to the organization and management of the event and in the publication of the enclosed proceedings.

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The co-creation of design in Online Communities: an Actor-Network perspective

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Abstract. The participation of customers in the creation of value is a central issue in the literature about Online Communities. This article investigates a specific instance of co-creation: the emergence of co-design through the interactions between designers and customers in online co-design communities. Given the relational ties embodied in co-design development, I chose Actor-Network Theory perspective to analyse the case of one of the most important online co-design community. The ANT gives the chance to consider both human and non-human actors, as the online co-design platform, and the heterogeneous network they create. This study frames co-design as a successful story of translation process causing the re-negotiation of traditional identities and roles of designers and customers. When the problematization of design is successful and the enrolment of allies, through the interessement phase, in the actor-network is sufficiently strong, the co-design emerges as actor-network and it is sustained over time.

Keywords: co-creation · co-design · actor-network · ANT · translation · identity.

1. Introduction

Thanks to the actual wide diffusion of online relationship-enabling platforms, such as social media and mobile apps that permit to facilitate online aggregation, the chances to enhance traditional business model or to create completely new ones, based on value co-creation through Online Communities (OC), are strongly grown.

At today the Internet and internet-enabled technologies are widespread means for knowledge creation and dissemination [1] so a diffuse claim is that the rules of the game are changing and new forms of organizing are needed to cope with this issue, but what is not well investigated yet, is how these new relational ties between organization and other actors are affected by their changing identities, such as in the case of customers as co-creators.

Co-creation can be defined as an activity that: "involves the joint creation of value by the firm and its network of various entities (such as customers, suppliers and

distributors) termed here actors. Innovations are thus the outcomes of behaviors and interactions between individuals and organizations" [2, p. 935]. This clearly underlines the importance of understanding how to manage these different forms of interactions between individuals, such as customers and designers, and the organization.

The aim of this study is to give a contribution to the very first phase of the above-mentioned process understanding which are these new relational ties, and how identities are affected by them, in the empirical setting of one of the most frequented and developed online co-design community: Threadless.

In the first part of the article I introduce the theoretical framework and distinguish the concepts of co-creation and co-design, which sometimes are wrongly considered synonyms [3].

Then I approached the empirical case using an Actor-Network Theory perspective in order to highlight the relational ties and the negotiations of interest and identities under the emergence of co-design that, using this perspective, shows an extremely high complexity. There is no clear distinction about the new roles and identities of customers, designers and online platform that can enhance co-creation of value and the whole story of co-design has to be described to open the black-box of co-design.

In the effort of following the actor [4] I have chosen to start from Threadless, which can be viewed as a punctualized [5] non-human actor and at the same time part of the actor-network constituted by its relations with the designers and its relations with customers. Following this approach, the emergence of co-design can be considered as a sort of innovation diffusion process and described analysing the four different "moments" of translation [4], [6].

At the end of this process co-design can be framed as a successful story of translation [4], [6,7] in which the identities of customers, designers and also the traditional conception of design is questioned by the problematization addressed by Threadless. Then the negotiation among actors about their identities is supported with the phase of allies' enrolment in the actor-network in order to defeat anti-programs. The final phases of an effective mobilization of the whole category of actors by its representatives, which can take part into the negotiation and transaction [4], lead to the stabilization of co-design as actor-network.

2. Theoretical framework

2.1 Actor-Network Theory and the four moments of translation

Approaching innovation with ANT perspective is well-established in different managerial literatures, just to cite some non-exhaustive examples, contributions can be founded in Information System literature [8,9,10,11], Accounting [6], [12], Health Care Management [13,14] and Innovation Management [15,16,17].

What emerges from the above-mentioned literature is that sociology of translation [4], [18,19] can be successfully employed to analyse and explain innovations and the mechanism of power that sustain them.

ANT analyses the process of innovation within the context, which is a constituent part of the innovation and not only a variable that permits to explain it [6], [13], moreover the context has to be considered in an extremely broad way; in fact success or failure of innovations hardly depends only on market and technical features [15], [17].

The analyses of success or failure of innovation need also to "examine its embedding in a wider community of sponsors and supporters" [17, p. 53] or, following the Callon's terminology, it is needed to take into consideration the enrolment or lock-in of allies [4], [6], [15], [20].

The innovation is successful to the same extent as the process of translation is and to reach this objective each of its four "moments" has to be successful: problematization, interessement, enrolment and mobilization [4], [6,7], [13].

In the problematization moment, also called by Callon [4, p. 209] "how to become indispensable", the initiating actors define the other actors' identities and interests [4], [6,7], [21], try to define the nature of the problem and to convince that they have the right solution [6,7], [20,21] and doing so they become an "obligatory passage point in the network" [4]. The following moment of "interessement" or "how the allies are locked into place" [4] can be defined as the phase in which initiating entities try to impose and stabilize the other actors' identities defined in the problematization phase [4], [7], [21] and to create the devices to align the actors' different interests [6], [21], or better to interposed themselves in between the other actors [4] and their attempts to define their identities in other ways.

When the interessement phase is successful it is followed by the third moment or the enrolment, that represent the "multilateral negotiations, trials of strength and tricks that accompany the interessements" [4, p. 211] and lead to the formation of alliance networks [6,7], [20, 21]. The final moment of the process is mobilisation or the attempt to answer the question: "are the spokesmen representative?" [4]. This phase if fundamental given that every empirical case hardly involves all the actors' collectivities, rather involved actors are often small numbers of individuals that represent and speaks in name of the masses [4]. When consensus is reached in this last phase, then the margins of manoeuvre of the different entities are limited [4] and the agreement on interests and identities become stable [20, 21].

2.2 Co-design in Online Communities as specific instance of co-creation

In managerial literature, especially in innovation field, the concept of value co-creation is actually widespread and it has been revisited and defined in a lot of different ways depending on the specific research field. Given the methodological ANT approach of this study, it is enough to define the main aspects of the concept in order to contextualize the case study about co-creation of design.

What emerged from the literature review about co-creation, is that one of the first definitions dates back to 1999 in a consultancy publication that defines co-creation as: "engaging customer directly in the production and distribution of value" [22, p. 38]. Previous literature about customer participation is even older but does not directly use the term co-creation [23, 24].

Then in more recent academic literature emerges a considerable consensus on referring to the articles of Prahalad and Ramaswamy [25,26,27,28] as fundamental references about co-creation. Their main point is that, thanks to new technologies,

such as the internet, the relations between customers and organizations are changing, becoming an increasing active dialogue. So the market is becoming a forum in which "customers play an active role in creating and competing for value" [25, p. 80] and the role of customers is evolved toward a two-faced one: "cocreators as well as consumer of value" [25, p. 80].

The use of Information Technologies and the Internet can ease the development of co-creative environment conditions, such as sustaining active dialogue, mobilizing customers' communities and co-creating personalized experiences [25], moreover the virtual environment: "also increase the speed and the persistence of customer engagement [29, p. 6].

On the other hand, the same technologies are making them more informed, networked, empowered, active and willingly to participate in the creation of value [26].

These "new" customers dislike the traditional paradigm of company-centric value creation and "Armed with new tools and dissatisfied with available choices, consumers want to interact with firms and thereby co-create value." [27, p. 5] and from a situation in which they are isolated, unaware and passive they move toward a new one in which they are connected, informed and active [27]. Consumers want to co-create personalized experiences with the company as the basis to co-create and co-extract value, on the contrary in a company-centric approach the firm is in charge to create all the experience and as a consequence the value proposition for the consumers; so a change is needed in the productive paradigm to arrive at a co-creation of products or services as joint creation of value [26, 27, 28].

The link between the concept of co-creation and the customers' communities, especially, in the online and virtual environment, can be found in the early phase of development of the literature. One of the first contributions is in Nambisan [30]. The main focus of the article is the relation between the process of New Product Development (NPD) and the Virtual Customers Communities (VCC) stating that VCC may enable distributed innovation models and firms can develop co-creation of knowledge and value together with their customers participating in VCCs [30].

Then studies on Online Communities have been developed taking into consideration different perspective: knowledge collaboration [31], work collaboration of the peripheral actors [32], relational-teleological features [33] and platform design often finalized at the enhancing NPD [30], [34, 35].

Given the aims of this study a complete review of the literature on Online Communities is out of scope, what is needed here is to define the constitutive elements of an OC in order to contextualize the case study in the framework of online customers' community characterized by co-creation, made both of possible customers but also by people interested in the main topic of the OC, in the specific case the design.

Following one of the main contribution about OCs we can define them as "a large, collectivity of voluntary members whose primary goal is member and collective welfare" where members share "interest, experience, or conviction" and "interact with one another and contribute to the collectivity" [36, pp. 1-2].

The last step in the development of the theoretical framework regards the definition of co-design and how it relates with the concept of co-creation.

Co-design is a concept that has been clarified recently by Sanders and Stappers [3], first of all, they underline that in the last decade often there is confusion on the two

words and they are sometimes considered synonyms. Then they give a brief definition of co-creation stating that it is "any act of collective creativity, i.e. creativity that is shared by two or more people." [3, p. 6] and a more narrow definition of co-design as "collective creativity as it is applied across the whole span of a design process" [3, p. 6] so the conceptual relation between the two is that: "co-design is a specific instance of co-creation" [3, p. 6].

Another issue about co-design is if it indicates the collaborative creation among two or more designers or if it refers to the creative collaboration among designers and non-designers. Sanders and Stappers [3] support the latter and moreover they propose a historical retrospective which suggest that the idea of collaboration between designer and non-designer users dates back to 1971 when in Manchester was held the conference called "Design Participation" and in the proceedings of the conferences Cross [37] stated the importance of the participation of users in the design process.

Relying on the above-mentioned literature it can be stated that co-design online communities are online platforms in which communities of designers and customers, that share affine teleological and relational links, interact in a process of co-design. The process of co-design, as specific instance of co-creation [3], is characterized by: an active dialogue on the creative ideas, the mobilization of customers' community around the design project and as consequence the co-creation of personalized experiences around design.

3. Empirical setting: Threadless as a co-design online community

Threadless born in 2000 as a little start-up based on a website of t-shirt designs' competitions, where designers simply submit their designs and are voted by the online community, then the best design is printed by the company and sold online. At the beginning of the website the printing timing was once every some months, depending on the sold-out of the previous contest and then, in 2004, the printing was every week. Given these premises is challenging to support the claim that Threadless is an online platform for co-creation of design, in fact as Prahalad and Ramaswamy [26,27,28] state that the dialogue and the effective participation of customers in the creation of value are fundamental to reach a real co-creation. The same idea can be translated in co-design as an instance of co-creation [3].

Indeed this is what appears surfing the website, but then my direct participation in the community life has unfolded the whole story. The co-creation of design "takes place" in the forum in which both consumers and designers can open discussions about their designs and gain suggestions in order to enhance their project before submitting them to the community evaluation. Here dialogue between users and designers develops and designers made their process of design transparent and accessible to the community. Then the emergence of a specific co-design project passes through the rating phase in which the community vote the best design on the website.

Part of the observations were done directly on the website as participant and member of the community from 2010-2013, this first period in which I participated as member of the community let me understand the mechanisms and the peculiarities of Threadless' OC. And beside this long period of participation in the community,

another period of more focused participant observation is done from October 2014 to February 2015.

I have chosen this specific empirical setting first because I had the chance of being active member of the community for about three years and directly observe and experienced the community dynamics. Then Threadless represent one of the biggest and more active online co-design community with an approximate number of 3.5 million of users, and even if the company does not disclose its financials, in 2009 Forbes estimates $ 30 millions of revenue.

Moreover the process of translation is quite peculiar if compared with other case studies [6,7], in which the actor-networks are created and sustained in quite long temporal range, in Threadless the actor-network of one co-design emerges weekly; so the creation and re-creation of different actor-networks can be observed in short time period.

4. Co-design as stabilized network of heterogeneous actors

The four main phases of translation process - problematization, interessement, enrolment and mobilization - are in this part analysed and described through the chosen case study. At the end it can be shown that co-design can be described as a successful story of translation and a black-boxed [38] or stabilized actor-network. The identities of designers, customers and design itself are questioned by the problematization addressed by Threadless, the negotiation among actors about identities is supported with the enrolment of allies in the actor-network, in particular customers and community members as customers' spokesmen. The final phase of an effective mobilization of the whole category of consumers by its representatives, which can take part into the negotiation and transaction [4], [39], leads to the emergent co-design.

When we consider the t-shirts sold on Threadless we can think of co-design as a taken-for-granted object that emerges by a process of voting taken-for-granted different co-designs but then, after few weeks, a specific co-design can disappear and at the same time tens of new ones are emerged meanwhile. What the ANT perspective permits is the opening of the co-design black box in order to understand the relational ties and the identities negotiations beyond it.

As in the case of knowledge, also co-design need a lot of work to emerge and consolidate in heterogeneous network and these heterogeneous materials resistance is overcome creating a solid albeit fleeting actor-network [40].

Following this perspective we can reason about design as part of the social, given that it takes part in the designers-customers relation that can lead to the co-design. As a text in a written communication, design mediates the relation among actors. Considering the design as a particular form of innovation I can describe the process of co-design development as a translation process [4]. The narration of this successful story of translation permits also to infer interesting insights about how to spot and manage heterogeneous relations in the context of innovation co-creation in online communities.

4.2. The problematization of co-design

As specified in the theoretical part the first moment of translation process is problematization [4] and the first step in order to analyse this phase is to circumscribe the actors that problematize co-design, their interests and identities [4], [6], [20,21].

The main interests which take part in the process belong to: designers, which are interested in developing and selling their designs, customers that what to choose the designs they prefer and the online platform, and Threadless, who earns its living by intermediating the previous relations.

The observations on Threadless suggest that the website acts to become indispensable or an obligatory passage point in this network, which is another way to see the process of problematization [4].

Threadless through its e-commerce, online procedures to submit and rank designs, netiquette, forum, promotion on social network and communication has created the conditions to problematize design and co-design and to becoming indispensable in the network.

With its problematization Threadless raises some questions: do designers have to work for fashion companies? Do the design has to be imposed to customers? Do customers have to decide which design they prefer for their cloths? Why they don't relate directly with designers? Can design be co-developed by customers and designers?

The analysis about co-design starts with the definition of different actors and punctualized actor-networks [5] and their interests in the development of a strong actor-network that sustain and substantiate co-design.

The first actor is the designer: he participates in Threadless in order to propose his design ideas and obtain consensus by community. If his design is high ranked at the end of the week, then he wins a monetary prize and the chance to see his design printed and sold on the website e-commerce. His reward is, as said, a cash prize and a royalty on the t-shirts sold.

The community members are another important actor that can be enrolled in the actor-network by designers. They can be customers or not, but in any case they participate to the community answering to the suggestions' requests of designers and open dialogues with them in the forum. The other fundamental action they can perform, in order to modify the final actor-network, is scoring the submitted co-designs.

The customers are actors whose aim is to find and buy t-shirt or other objects (long-sleeved shirt, hoodies, smartphone cases…) with the design they like and to buy them on the e-commerce. But if they don't subscribe on the website they can't be part of the online community.

The Threadless platform is as a matter of fact a complex actor-network sustained by a great variety of human and non-human actors such as developers, internet-service providers, managers, investors, money and so on. Given that complexity and the aims of this study, I have decided to consider it as a non-human actor applying the idea of punctualization [5] of a more complex actor-networks that constitute it. This is at the same time a useful and parsimonious way to proceed in the analysis but at the same time a limitation because the chance to analyse "inscription" [41] of Threadless platform as technological artefacts is not exploited.

4.3. Threadless attempt to lock allies: the interessement

At this point all the needed actors, in order to create a co-design, are present, what it is missing is the enrolment of allies in order to strengthen the actor-network around innovation [20] or in our case, around co-design.

The more evident approach used by Threadless to enrol allies is the commercial modes of interessement, but as Alcouffe, Berland, and Levant [6] show in their research, sometimes it is not strong enough. The commercial mode is evident, the cash reward and royalty for designers and the good price for customers are indeed incentives to participate in the network. But on the customers side the convenient price is not an incentive to participate in the forum and in the scoring of the design, so the other interessement mode is to promote the participation of the customers as a way to have the chance to buy product with the design they like. Moreover the online community is the only way for customers to see their wishes about the design, more or less, realized and to co-create personalized experience [26,27,28] around design development.

Moreover Threadless works on giving to designer other interessement modes, in particular it gives the chance to pre-submit the design to the community forum in order to create interest and dialogue on it and then to share the design on social media to obtain positive ratings and self-promotion as designer.

As stated by Callon [4, p. 208]: "To interest other actors is to build devices which can be placed between them and all other entities who want to define their identities otherwise. A interests B by cutting or weakening all the links between B and the invisible (or at times quite visible) group of other entities C, D, E, etc. who may want to link themselves to B."

In this sense the designer has to strengthen the links within a strong network of allied customers that support their design projects. They need that customers define their identities participating into the creation of design; in such way those customers are less interested in creating links with others actors that can be other designers or clothes resellers.

4.4. The enrolment of community members

The interessement phase is not always followed by a successful story and the strengthening of network [4], [6], in this specific case, around the co-design project. Only when the interessement phase is successful the enrolment takes place and follows the negotiations and trials of strength [4], [42].

Another important aspect that can preclude the emergence of a co-designs is that each designer has to face a lot of anti-programs, namely the other co-designs on the online platform, supported by network of counteractors [6], [43]. Following the analysis of Threadless power mechanisms we can see that the enrolment is fundamental; without sufficient numbers of community members that support the project the actor-network collapses at the end of the week and it's replaced by another project. So at the end the story of co-design is always an "happy-ending" story, but only after a "bloody" struggle of programs and anti-programs supported by different actor-networks.

The importance of negotiating interests here emerges and gives sense to co-design; in fact designers prefer to negotiate their projects in order to obtain the as strong as

possible network of allies. But the most important negotiation involves the actors' identities.

The identity of community members, that halt to be simply customers and become voters and collaborators in co-design project, has to be negotiated and accepted by them. The same for designers that have to accept that their identities are not characterized by individual creativity [44], but their creativity is part of a collective co-creative effort in which customers participate.

If actors don't accept these new identities then the most important actors in co-design actor-network are missing and co-design ceases to exist.

4.5. The mobilization of customers and designers

In Threadless it can be also observed the dynamic of masses mobilization by the representation of a smaller number of spokesmen, which takes part in the negotiations and transactions [4] that lead to the emergent co-design.

As we can imagine the designers that joined Threadless are not the whole category of designers, the community members are not the whole category of customers and customers of Threadless are not the whole category of t-shirts consumers; but indeed these whole populations are effectively mobilized by their representatives.

The successful story of a co-design project depends on this effective mobilization made by the representatives of those groups, in particular by the mobilization of customers made by the community members that act as spokesmen. The emergent co-design indeed don't represent the collaboration of all the customers to a design project, Threadless has created relations only with a limited number of designers, community members and customers that are only the representatives. Consumers are "all dispersed" and "not easily accessible" [4] so there is the need for Threadless to designate representatives, the community members, that act as spokesmen.

After that mobilization can be done in the sense proposed by Callon [4, p.217] when states that mobilization is obtained: "Through the designation of the successive spokesmen and the settlement of a series of equivalencies, all these actors are first displaced and then reassembled at a certain place at a particular time".

Customers are transformed into community members, who are transformed into suggestions' posts for designers in the forum, and their preferences are transformed into online votes attached to the submitted designs. The designer, their ideas and the process of dialogue and co-creation are transformed into an image file that can be easily subjected to reviews and voting by community members.

The final ranking is a set of numbers that helps Threadless in deciding which is the co-design to print. So at the end, the successful mobilization process results in a printed t-shirt that represents a successful story of co-design.

So paraphrasing the final statement of Callon [4] about "social and natural 'reality'" and attributing it to co-design, which involves both social and natural "reality", it can be said that co-design is the "result of the generalized negotiation about the representativity of the spokesmen. If consensus is achieved, the margins of manoeuvre of each entity will then be tightly delimited." [4, p. 218] and the actor-network is sustained over time.

5. Conclusion

The main objective of this study is to frame, analyse and describe co-design through sociology of translation perspective in order to emerge the relational ties and the negotiations regarding identities and interests involved.

The previous description of Threadless case, framed in ANT perspective, could be a first step in achieving the above-mentioned aims.

Threadless permits to designers and customers to create, negotiate and eventually accept new hypothesis about their identities. So co-design is not a simply object, that can be conceptualized and measured, but it is the result of a complex and heterogeneous actor-network that emerges from a process of translation.

The existence of a co-design is the result of a continuous creation and re-creation of actor-networks, but without a sufficiently strong enrolment of allies a co-design project, and in more general term the co-design itself collapses.

The enrolment of customers and their representatives, the community members, is a central part of the process, but to achieve this aim there is the need of the problematization of design and interessement around it.

Even if actor-network perspective has not the objective of generalization or production of normative prescriptions for managers, some interesting hints can be derived from the description of a successful co-design story.

The mechanisms of power and the social dynamics that emerge from the analyses through the sociology of translation approach can strengthen the comprehension about: how a strong actor-network can emerge and sustain co-design, which are the main human and non-human actors, the relation ties among them and the negotiations about interests and identities.

This study has limitations, in particular, the choice to not analyse Threadless actor-network, in fact the ANT perspective can give some useful hints also for scholars who research on the design of online platform that enhances participation of community members. In this case analyse the role of the punctualized actor-network, Threadless, is central in the problematization and in negotiating and redefining the identities of the actors. So further studies can be addressed to open the black box of Threadless or other online co-design platforms and communities, instead of considering them a node of the co-design actor-network as I have done in order to make the analyses more manageable. Understanding the formation of the online co-design platform heterogeneous network can enhance the compression of the whole network that sustain and substantiate co-design.

In a research area in which often co-creation and co-design are studied as theoretical constructs or processes observable as stand-alone objects, this study propose a different approach in which realty and social, material and semiotic can not be studied separately and co-design can exist only if the relations between both human and non-human actors are maintained in a constant state of making and re-making.

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