

GUEST EDITORIAL PREFACE

Special Issue on Actor-Network Theory, Value Co-Creation and Design in Open Innovation Environments

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Value co-creation has emerged as a new innovation paradigm emphasizing that customers and end users should be considered as active participants in the design and development of personalized products, services, and experiences.¹ It is based on the design and implementation of customer participation platforms, providing firms with the technological and human resources, tools, and mechanisms to benefit from the engagement experiences of individuals and communities as a new basis of value creation. According to the notion of co-creation, if a user or customer is involved in the design or production of a product or service, the end value will be enhanced for both, the customers and the firm, because of the opportunity for customers to creatively contribute to the design and innovation processes by tailoring the product according to their own personal visions.² Co-creation therefore refers to collaboration with customers for the purposes of innovation.³ Even though the end user is the ultimate destination of the value creation process, the interaction between designers/innovators and end users is not merely a bi-directional process since it incorporates the contingency of the activities performed by the different actors contributing to the emergence of customer value.

The conceptualization of the contingent nature and the multiplicity of agency as well as the emergent nature of customer value have created challenges for design and innovation researchers requiring a deeper and more symmetrical understanding of the interaction between designers, innovators, customers and end users. As result, there is a need for a better understanding of the

changing nature of design and innovation, with an emphasis on their social dimension and a focus on the participation of the end users, including a new understanding of the customer centrality of the traditional value creation concept. Such re-invention of value creation includes the conceptualization of different and new ways of customer involvement that can occur through shared inventiveness, co-design, or shared production.⁴ The co-creation paradigm is therefore naturally related to design research and practice including emerging new approaches based on design activism, design participation, and social and participatory innovation. The new design approaches have contributed to completely rethinking the traditional separation between designers and users, their roles and their interdependencies in the innovation process.

In the configuration of the relationships between designers and customers, the relational aspects of the newly designed products as well as the variety of actors that could potentially contribute to the emergence of the specific product value attributes and experience become a key factor. Taking into account the multidimensional relationality of new product adoption processes has offered the opportunity to address the emerging issues by means of Actor-Network Theory (ANT).⁵ The ANT approach has a great potential in terms of the resources that it could offer in elaborating the new role of customers in design and innovation. It has established itself as a great tool for the analysis of technology innovation and adoption environments, fitting very well the emergence of the open innovation paradigm with its ecosystem and multiple stakeholder perspectives.

ANT offers a unique way to study the constructive interference between value co-creation and design within the context of the changing nature of the relationship between designers and customers: “ANT does not locate action within an individual – be it a human or not. Action is never the product of a singular will, but rather the outcome of the relationship between several entities – the actor network. ... Making new things possible is, hence, not only the effort of a mind that strives to have new ideas but also the outcome of the ways in which we interact with other people and with the artifacts that surround us.”⁶

The present special issue focuses on the application of ANT to the articulation of a co-creative perspective on design in open innovation environments. The Editors invited submissions by authors using ANT to explore and discuss the link between value co-creation, design and innovation and especially those focusing on some aspects of technological innovation. The editorial process concluded with four articles which address the topic in different and somewhat complementary ways.

This article by Juha Koivisto and Pasi Pohjola, *Doing together: Co-designing the socio-materiality of services in the public sector*, suggests a systemic innovation model incorporating the relational aspects of ANT's approach. The article examines how such relational approach could help the conceptualization, co-design and co-development of new services in the public welfare and healthcare sectors in Finland. The suggested model consists of three iterative and mutually constitutive components – Stimulate, Incubate and Enact. One of the key points associated with such partitioning is that all three components should be considered as (co-)performing in achieving the desired outcomes. The model is designed in a way that allows the articulation of specific practices by illustrating the concrete co-design activities of services that could be enabled through an open web-based development environment. In addition, the conceptualization of the model allows for the identification of the key challenges faced by the various actors involved in the co-creative environment. One such obstacle is the difficulty of organizing the development activities into projects in a way that is not far away from the logic of everyday work practices. The authors found out that it is usually quite difficult to use every day practices as a way of involving clients, citizens and other actors in the development process. The inability to efficiently involve clients, citizens and other potential actors forced the project developers to undertake a

more proactive design-driven approach by developing the practices among themselves and then offering them as a ready-made package. This is an interesting finding since it shows that even when adopting an ANT perspective on new service development, designers and innovators should not expect to have a service emerge “out of nothing” but start instead with a first preliminary version, using it as “minimum viable product” that is to be further developed by engaging the contributions of the various relevant actors. This is a finding that has been already discussed in the context of open source software practices⁷ and has recently become a landmark in the lean start-up approach to new product development.⁸

The article by Patricia Wolf and Peter Troxler, *Look who's acting! Applying Actor Network Theory for studying knowledge sharing in a co-design project*, offers an empirical case study of the value creation practices in digital maker communities. The study aims at providing some first explorative insights on how and by whom (new) knowledge is co-created in innovation processes in open design communities. The methodology is based on insights from both ANT and the performative agential method that was developed with the key contribution by one of the co-authors (Wolf and Holzer, 2013). The combination of the two approaches allowed identifying, describing and classifying the actors who were involved in re-configuring the actor-networks associated with the open design project, by taking into account the human and non-human as well as material and quasi-actors. The authors distinguish between two different types of networks – initiation actor-networks and realization actor-networks. The two different network types were found to re-assemble around nodes that result from translations and transformations of the initial project idea. The authors provide a detailed description of the translations and the circular movement in the network as well as of the translation costs, time effects, intermediaries and mediators. As a result the emergence of two different processes of translation has been identified by focusing on the dominance of inside-out and outside-in relational processes. The authors have specifically discussed the struggle which is sometimes hidden in the processes of interestment, i.e. situations when some of the initiating actors try to impose and stabilize the identity of other actors by using technology in particular (i.e. non-human actors) or by “fighting” the inherent non-synopticity of the interactions. An additional dimension of struggle is associated with the necessity of dealing with the fact that the actors involved in the processes of interestment might substantially differ in terms of their ability to exert pressure on each other. As a result, some of the actors might become unreasonably influential among all others. The authors point out that in their study some of the initiators were found to clearly overlook the fact that non-human actors could develop their own agency beyond or outside the intent of initiators – an effect that was observed when technology solutions were proposed to socio-technical problems. This point appears to be particularly relevant in the context of co-creative environments since it demonstrates the need to account for the relevance of the agential contingency of autonomous technological artifacts. Another emphasis of the article refers (in complete alignment with ANT and the performative agential analysis method) to the fact that co-creative interactions are not single-layered, isotopic and homogeneous. Last but not least, the authors provide some practical insights to members of digital maker communities willing to set up new open design projects, such as: *first*, being aware of the intensity of direct communication that would be needed in enabling a truly co-creative environment; *second*, involving, re-configuring and actualizing the resources of existing networks but also using all possible social networking mechanisms to enable the engagement of actors offering completely new resources; *third*, using simple rules and tasks to stimulate the participation of external actors; *fourth*, actors from the first realization networks should be prepared for last minute efforts.

The article by Marta Dopierski offers an analysis of the nature of distributed agency during the creation of computer-generated characters for live-action movies based on Motion

Capture (Mocap) techniques. The uniqueness of the research context is based on the fact that Mocap techniques require a very tight interplay between human actors, technical artifacts and digital processes. The study shows that an ANT-based approach allows for a more comprehensive analysis of the assignment of agency to both human and non-human participants in a way that leads to the emergence of new relationships. A particular emphasis is made on the combined interplay of humans and computer-driven actions resulting in the figure of a “hybrid actor”. The author uses Gollum, a computer-generated character from Peter Jackson’s adaptation of the Lord of the Rings, as an example illustrating the carving out of the attributes of the new composite agent. The aim of the article is to show how the new type of agent tackles film industry’s inherent ontology revolving around human actors and their technological artifacts. The adoption of the ANT mindset does not end with examining the distribution of agency among the human and non-human entities. The key additional benefit consists in laying out an integrative perspective on the various networks. The integrative perspective is particularly relevant in the context of the increasing “technologization” of production modalities. As a result of the technologization, the different networks tend to create their own strategies or practices in order to maintain an ontology revolving around its human actors. Dopieralski points out that the Mocap technique with its composite agents has triggered not only a genuine theoretical interest but also an authentic process of conceptual reinvention and questioning within the film industry’s networks. In this sense, according to the author, the growing adoption of Mocap techniques so far is more a question of discourse than technology, a discourse in which the industrial players could be much more relevant in deciding whether motion capture will be canonized as animation, live action, or visual effect.

The article by Liesbeth Huybrechts, Katrien Dreessen and Selina Schepers applies ANT to explore the relationship between uncertainties and the quality of participation in co-design processes. The authors investigate Latour’s (2005) discussion of uncertainties in social processes concerning the nature of actors, actions, objects, facts/matters of concern and the study of the social. The article groups the diversity of articulations of the role and place of uncertainty in co-design into four uncertainty models: the (1) neoliberal uncertainty model, (2) uncertainty management model, (3) disruptive uncertainty model and (4) open uncertainty model. The authors offer a qualitatively study of the relationship between the role and place of uncertainty by focusing on the quality of two infrastructuring processes in the domain of design for health-care – Bespoke Design and Mobile Design Lab. A key component of the elaboration is on how ANT can support the development of an exploratory ‘lens’ to assess how uncertainties hinder or contribute to the quality of participation.

The analysis showed that the two infrastructuring processes were set up from an open uncertainty model: they were defined by a limited anticipation of uncertainties but, at the same time, accounted for the uncertainties emerging within the daily reality of the processes. The authors pointed out and discussed five aspects focusing on the evaluation of the quality of participation. *First*, the co-design sessions supported the actors to develop independent views on different issues by expressing their ideas about the emerging concepts and prototypes. This expression was sometimes inhibited by their low-level confidence with respect to their specific roles. Due to the uncertainties, some of the designers and participants shifted from a more critical and outspoken way of expressing their views to carefully and constructively adjusting both the concepts and the ways of handling the issues of concern. According to the authors, there is a need for a continuous evaluation of how actors can be supported in developing their independent views by taking into account the trust and confidence in expressing their views within the context of the emerging uncertainties. *Second*, given the longevity of the participation, the actors found it important to provide and share relevant information aiming at making the process transparent for current and

future participants. The authors recommend the continuous evaluation of the transparency and the quality of the documentation of the participatory processes by taking into consideration how the specific way of documenting addresses actors' uncertainties. *Third*, the authors found out that the inclusion of participants in decision-making was a concern in both processes. For example, the discussions on group formations, roles and memberships enabled a deeper involvement of the participants. However, more inexperienced designers unconsciously interacted more superficially with actors that were less experienced in design processes and the other way around. As a result, the authors suggest that the inclusion of actors in the decision-making process needs to be continuously re-evaluated by looking into the uncertainties surrounding their number, level of involvement, roles, group formation and membership. *Fourth*, in both case studies all involved actors were invited to drive the infrastructuring process by reconfiguring the participatory methods, tools and techniques. The study shows that many uncertainties stem from the diversity of actors' goals in reconfiguring the specific participatory methods, tools and techniques. It is therefore crucial to make these goals as transparent as possible. *Finally*, the authors point out that in both processes the participation of actors was opened up for alternative technical and/or organizational arrangements. There were continuous fluctuations in terms of who participated and in which constellations. The study confirms the benefits of evaluating the flexibility of participatory processes in alternative technical and/or organizational arrangements, but also emphasizes the need to study this in relation to the delicate nature of the specific problematic issues.

Although quite different in terms of their overall topics and methodologies, the four articles emphasize and demonstrate the suitability of ANT to address the various phenomena associated with the dynamics, the contingency and the performativity of the inter-actions in co-creative innovation environments. The present special issue is the first forum opening the discussion which should be followed by other studies focusing on further articulating ANT's potential for studying co-creation phenomena in design and innovation practices.

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ENDNOTES

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