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CO-CREATING TECHNOLOGY ENHANCED RESPONSIBLE IT SOLUTIONS TOGETHER WITH STAKEHOLDERS: PRACTICAL EXAMPLE FROM V4

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ABSTRACT

IT co-creation seen as the act of creating solutions together brings different stakeholders side by side (e.g. companies, groups of customers, IT developers, innovators, citizens, etc.), in order to develop a co-operatively satisfying and valued output in the IT innovation process. In general, it requires changing the traditional approaches of developing IT solutions behind the doors, and implementing an open, dynamic and up-to-date approach to innovation. The presented article aims to zoom in the IT co-creation process and showcase a practical example of co-creating technology enhanced socially responsible IT solution together with all the relevant stakeholders in the V4 countries.

Keywords: co-creating IT solutions, IT innovation, stakeholders' engagement.

INTRODUCTION

As the title of the article suggests – "*Co-creating technology enhanced responsible IT solutions together with stakeholders*" – we will focus our attention on the IT co-creation process, generating responsible IT solutions, while bringing together different stakeholders side by side (e.g. companies, groups of customers, IT developers, innovators, citizens, etc.), in order to design and develop a co-operatively satisfying and jointly valued output in the IT innovation process. As a matter of fact, this creation process requires a significant change of the traditional approaches to IT solutions development, oftentimes happening behind the doors. In general, applying an open, dynamic and up-to-date co-creation working style to the IT innovation process is believed by many to be a functioning approach. Therefore, the presented paper aims to zoom in the IT co-creation process and showcase a very concrete practical example of co-creating technology enhanced socially and environmentally responsible IT solution, together with the relevant stakeholders, in the V4 countries.

CO-CREATION PROCESS

In order to understand the importance of innovating collectively, we have gone through a long way, which has certainly not come to its end, and has been accompanied by a number of challenges. One of them, being above the rest, is to convince the non-believers, the lazy, the traditionalists, etc., especially by showing the evidence. Therefore, the aim of this paper is to provide a theoretical background of the co-creation concept, and also a concrete example as an evidence demonstrating that co-creation, open innovation and open citizen science mean way more than just a new and widely untried phenomenon.

The term *co-creation* was first introduced by professor Prahalad and Ramaswamy in the article named *Co-opting Customer Competence* in 2000. Since that time, major tech companies like Google or Netflix implemented co-creation as a method to involve customers in the innovation processes

[16] Slovak Centre of Scientific and Technical Information has been conducting SK4ERA, a project supported by the Operational Programme Research and Innovation, in scope of which this paper was developed and presented at STED 2019.

and value chains (Laurea, 2019). Co-creation can be defined as a cooperative development of novel and innovative values – be it concepts, solutions, products or services – together with experts and other relevant actors (e.g. customers, suppliers, activists, researchers). Another important feature of co-creation is that ideas are shared among the involved parties and improved together in the design and development process, rather than kept to oneself. As put by Prahalad and Ramaswamy, co-creation as a professional discipline is a complete set of abilities, models, competencies, methods and activities that allow the co-creation process. Co-creation projects or actions bring diverse parties together, in order to create a mutually valued result cooperatively (Prahalad, Ramaswamy, 2004).

In another study of Prahalad and Ramaswamy, co-creation is defined as: "The joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context" (Prahalad and Ramaswamy, 2004, p. 8). As explained by the Finnish Ministry of Education and Culture: "Faster product development and added value, among other reasons, make companies choose co-creation. Essentially, co-creation is a joint development activity that leads to shared value creation." (Laurea, 2019).

Pieters and Jansen further elaborated the co-creation theories and established the term *complete co-creation*, which refers to the "transparent process of value creation in ongoing, productive collaboration with, and supported by all relevant parties, with end-users playing a central role" (Jansen, Pieters, 2017, p. 15). In general, we can regard to this definition when looking for a practical explanation of the mostly academic understanding of co-creation. Complete co-creation dynamically includes end-users and other important actors throughout the whole design and creation process, namely starting at the challenge identification leading to the solution application.

The co-creation is according to Ramaswamy and Ozcan made up of four elements or principles, serving as building blocks of the process, concretely:

dialogue or interaction as a two-way communication;

transparency meaning the elimination of information barriers in order to act trustworthy; **access** to data and to the design and development, materializing in joint value creation;

reflexivity in a sense that individuals are able to feed back into the cause-effect engagement loops. Thus, dialogue, transparency, access and reflexivity – DART for short – build on one another in shaping co-creation experiences. (Ramaswamy, Ozcan, 2014, p. 11-12).

A successful co-creation process demands two key steps to be fulfilled (O'hern, Rindfleisch, 2010):

1. input in form of **ideas** – however, receiving contributions is quite uneasy because most people live a quite busy life; on the other hand, if customers are addressed in an attractive way, co-creation efforts have the potential to get enough proposals.
2. **choosing** feasible and sustainable ideas – after getting the inputs, the companies choose those that can be applied in terms of being useful, practical and having the potential to be implemented; the actual engagement and its intensity are the most important aspects of this phase.

Additionally, it is principal to outline that the co-creation process does not exist on its own; it actually allows for and benefits from a few other concepts, standards and innovative approaches, namely (Laurea, 2019):

RRI – responsible research and innovation involving aspects or criteria as public engagement, open access to research data and results, gender balance, ethics, and science education;

Open Innovation – innovation that runs counter to "behind the door" style of innovation development;

Living Labs – seen as user-centred, open-innovation ecosystems including public-private-people partnerships;

Open Science – allows making scientific research and its dissemination accessible to all interested parties;

FAIR-data – standards of findability, accessibility, interoperability, and reusability applied to any data;

Citizen Science – understood as research conducted by non-professional scientists, resp. citizens.

Mainstreaming multi-stakeholder co-creation has been happening in many areas as an approach to open innovation to the wide public, while innovation and support to business ecosystems development, especially those in line with circular economy, has become one very important area allowing for innovation towards a brighter future.

However, as stressed by Laurea, co-creation is not limited to industry-customer relationships. Additionally, Laurea discusses that a more recent explanation of co-creation includes also the quadruple helix model, which highlights interactions among four types of actors: academia, industry, public sector, and civil society. The necessity of multi-stakeholder collaboration in solving the compound challenges of today has been stressed by several thinkers, Laurea high-pointed Mariana Mazzucato, an Italian-US economist. (Laurea, 2019) As the societal challenges have become so complex and intertwined, a range of cross-sectorial stakeholders and their teamwork is needed to be ensured in the mission-oriented process to resolve them. For instance, the lack of transparency and traceability in the fashion industry, considered to be one of the five most polluting industries, is such a composite issue that only complete co-creation can offer a lasting and effective solution.

IT CO-CREATION: PRACTICAL EXAMPLE FROM V4

The presented paper is there to zoom in an IT solution co-creation process by showcasing a very concrete and practical example of co-creating *technology enhanced socially and environmentally responsible IT solution called TELLMYS – Tell Me Your Story*, in cooperation with relevant stakeholders from V4 countries.

The focus area of the project implementing the solution is:

- introduction of innovation,
- improvement of the ecosystem for business development, and
- application of sustainability measures in the fashion and textile industry.

The partners involved in the project implementation – from Slovakia, Czech Republic, Poland and Hungary[17] – have engaged in a multi-stakeholder collaboration allowing for and benefiting from opening of research and innovation in the form of applying progressive blockchain solutions for fashion and textile industry, and also opening of educational processes engaging respective communities, tending to do it inclusively. As Prahalad and Ramaswamy put it, the joint creation of value by an organization and the users/customers, allowing the them to co-construct the service experience to suit their context, is what has been carried out in scope of TELLMYS project[18].

The project sees sustainability in textile industry as an issue, which needs complex and innovative approach. It is a fact that the evolution of the society caused the textile industry is in top 5 industries causing environmental harm[19]. In general, this topic is related to everyone, since never before humanity faced real loss of drinking water, drainage soil, climate crisis, gender inequality and new age slavery in textile factories, as it has been nowadays. Report Pulse of Fashion Industry found that consumer awareness of environmental and social sustainability is gaining with more than one third; surveyed consumers reported they have switched from their preferred brand to another for reasons related to responsible practices (consult the chart below).

[17] Namely they go as follows: Nitka (SK), National Fashion League Hungary Association (HU), Fashion Revolution Czech Republic (CZ), Slow Fashion Cafe Katarzyna Stypulska-Trybulec (PL).

[18] TELLMYS project received funding for its implementation from the Visegrad fund and ČSOB fund.

[19] For example, see works of James Conca, environmental scientist.

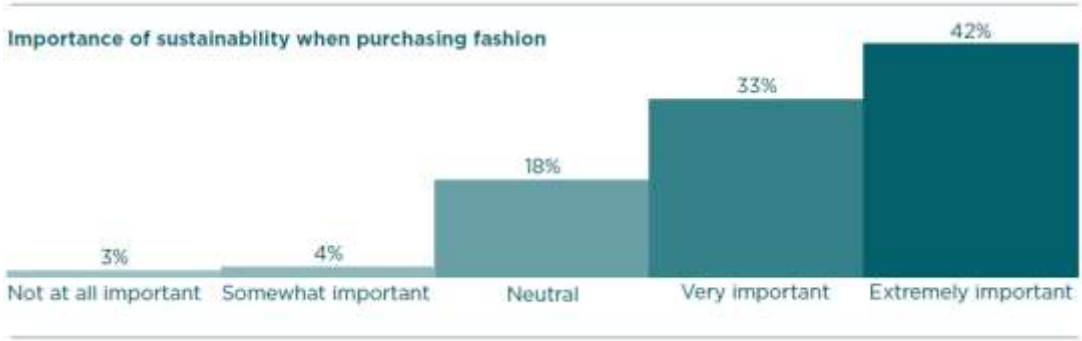

Figure 1: How important is sustainability to you when purchasing fashion products, on a scale of 1 to 5? (Global Fashion Agenda forum: Pulse of the Fashion Industry report).

It is a general truth that society would like to make responsible decisions, yet there is not enough information for that. However, we live in a modern society, where technology is the most effective way of obtaining information and blockchain is seen by many as a technology of the future. On one side, the sustainable fashion market has been globally growing, involving local farmers, producers and studios with lower CO_2 footprint, supporting markets and economic development of regions. And on the other, with that grows a number of customers searching for this kind of producers[20]. What has been missing so far is the innovative and effective way of connecting them, and that is what TELLMYS as a platform aims for: to "tell the story" of the products. Information about producers and products will be available through a mobile app and webpage, and the consumers will be able to make decisions based on quality and complex information provided to them. This way the project contributes to more transparency, reliability, traceability and also objectivity in the textile industry by using a blockchain solution supporting this greatly.

The project intends to contribute to this change by establishing an ecosystem consisting of a mobile app and web portal integrated on blockchain aiming to connect textile and fashion designers/producers/sellers with their customers. Designers/producers/sellers shall let their customers find out information about origins of their clothing products through the story of the products provided in the system. Every piece will have its unique code. To store the information, blockchain – an open, public and distributed system – will be used.

Sustainability, transparency and traceability are the main attributes of this project, which aims to stimulate consumers to make informed purchase decisions. In first place the aim is to support B2C but also B2B relations, as well as support meaningful and supportive usage of the newest technologies. The main goal of the project partners is to create a database of local and sustainable clothing producers, including their company and product details, then reach out to them with an effective marketing strategy and offer them an effective online tool to communicate their products' stories to their customers. They will be able to find all relevant product information after scanning the unique code at the label of the piece of clothing, in stores or at sales markets. The social environment of the target groups is going to change, as more customers will require the "product story" before the actual purchase, therefore more producers, designers and stores will use the blockchain solution.

CONCLUSIONS

The presented paper focused on the IT co-creation process, generating responsible IT solutions, while bringing together different stakeholders side by side (e.g. companies, groups of customers, IT developers, innovators, citizens, etc.), in order to design and develop a co-operatively satisfying and jointly valued output in the IT innovation process. This creation process requires a significant change of the traditional approaches to IT solutions development. The showcased TELLMYS project was

[20] For example, see articles of Olivia Pinnock, fashion journalist.

given as an example of the functional applying of an open, dynamic and up-to-date co-creation working style to the IT innovation process. It is a very concrete and practical example of co-creating technology enhanced socially and environmentally responsible IT solution implemented on blockchain, together with the relevant actors, in the V4 countries.

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