Digital Social Innovation: analysis of the conceptualization process and definition proposal

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Abstract

The aim of this paper is to review in the scientific literature the different terms and conceptions referred to a recent phenomenon called Digital Social Innovation (DSI). Since this review, carried out from a descriptive perspective, we provide additional clarification by presenting a classification of the terms found in different scientific contexts and an analysis of the conceptualization process. Finally, following the prescriptive criteria for standards related to the construction of the knowledge, we provide further conceptualization through a definition that will allow us define some dimensions and measures in the later phases of our research.

Keywords

Digital social innovation concept, organisational network model, co-creation, civic engagement, online community

1. Introduction

Nowadays the connected world allows the development of diverse technologies that gather together the talent of crowds, creating value for individuals, groups and organizations. Crowds have the opportunity and the potential to tackle pressing social challenges (Dawson, 2011) from a plausible future socio-economic scenario where citizens can transform society from the bottom up into a forum of democracy and freedom (Sestini, 2012). This “knowledge-based economy” forum (Oslo Manual, 2005) allows co-creation and exchanging “knowledge and solutions for a wide range of social needs” in areas like healthcare, education, democracy, corruption, environment and employment (Bria, 2014). The overarching technology trend that supports this scenario is under the pillars of the openness philosophy: open data, open hardware, open networks and open knowledge (Stokes, 2017). This environment of open standards is named the

Digital Social Innovation Ecosystem and supports the emergence of online communities (Hagel, 1997) and strategic networks that enhance the variety of possible organizational engagements for value creation.

Thus 1,051 projects and 1,883 organizations have disseminated DSI initiatives that are currently receiving a great deal of attention from academic, professional and political spheres. These projects and organisations are clustered into six provisional domains: New Ways of Making, Collaborative Economy, Awareness Networks, Open Democracy, Funding Acceleration and Incubation and Open Access (Bria, 2017). Precious Plastic, Open Corporates or Citizens Foundation are just some examples of successful DSI initiatives.

However, understanding DSI by identifying its meaning and relation to other social innovation concepts is complex for several reasons. On the one hand, the complexity of the transition process from the traditional social innovation to the digital world (Mulgan, 2012). On the other hand, DSI projects have a particular approach to science called citizen-science in which citizens are ensconced in particular roles to collaborate with scientists. This has resulted in a broad range of terms rapidly growing in non-academics journals.

According to the sociologist Earl Babbie, the process of conceptualization of a term should create and configure the terminology knowledge base according to several goals: (1) specify a concise, consistent and applicable terminology definition language for the domains of all the ecosystem, especially considering that the role of the citizen communities is a key driver in the co-creation process; (2) describe the indicators to measure the dimensions that structure the new fields of scientific research and (3) improve the cost-efficiency analysis in the scientific literature (Babbie, 2011).

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This paper is part of an ongoing research in the DSI field being the first of its purposes to investigate the different concepts, providing further clarification through an analysis of the conceptions and a definition based on the theoretical basis proposed by Babbie.

2. Clarifying the digital social innovation term: research results

To review the literature this study used several data bases including the Web of Science, Scopus, EBSCO, Google Scholar, Dialnet, Academia and Jurn with the aim of search-

ing for scientific publications that comprise initially all the key words of the idiom 'digital', 'social' and 'innovation' in either the title, keywords or abstract fields of each database. As it is a recent phenomenon we have found a small number of scientific articles. Besides the ecosystem is broad, dynamic and complex so researchers in the field are depicting different terms to address the topic. Based on this result we expanded the key words adding: 'civic technology', 'social innovation in digital context', 'social technical innovation', 'social technology'. The number of articles identified was 65 referring to 33 publications. Table 1 presents a selected classification of the concepts found along with the basis or research context.

Table 1 Review of the terms linked with Digital Social Innovation.

AUTHOR	Concept	Definition	Basis of the definition
Cruikshank B, 1999	Technologies of the citizens	"Tactics aimed at making individuals politically active and capable of self-government."	Governance Strategies
Friedland D, Boyte H, 2000	"e-Commons" or the new information commons	"Citizens in community partnerships that involve information institutions, workers in information fields and government."	Civic engagement and public works
Cavanaugh J, 2000	Impact of technology on Civic Life	"Incorporation of new communication technologies into various aspects of the public square: governance and civic life."	e-Democracy
Warschauer M, 2003	Social embeddedness of technology	"Technology as a mechanism of social inclusion."	Digitalization & Digital Divide
Mumford MD et al., 2003	Linkage between Social Innovation and new technologies	"Social innovation is the generation and implementation of new ideas about people and their interactions within a social system whose success depends on the development of new technologies. Social innovations may, at times, force the development of certain technologies, but at other times, technology may force the adoption of proposed social innovations."	Scientific management
Leibetseder, 2011	Social Technology	"The usage of sociological knowledge (methods and theories) to obtain a scientific based analysis for a purpose, which is, then, used for political decisions."	Governmentality and power
	Technologies of the citizens	"The means by which government works through rather than simply against the subjectivities of the poor. The poor are governed, so to speak, but not strictly by the government or the state."	

Sestini F, 2012	Collective Awareness Platforms	“ICT systems leveraging the network effect (or the “collective intelligence”) for gathering and making use of open data, by combining social media, distributed knowledge creation and IoT.”	Internet ecosystems: Sustainability & Ethics
Whittle J, 2013	Citizen-led digital social innovation	“Projects with common themes: (1) citizen-led innovation through equal partnerships between University and its community and (2) digital innovations addressing real problems with real people.”	Citizen-led research
Bulut C, 2013	Technological Innovation	“Comprise new products and processes and significant technological changes of products and processes. An innovation has been implemented if it has been introduced on the market.”	Innovation
Suri MV, 2013	Civic technology	“Platforms and applications that enable citizens to connect and collaborate with each other and with government.”	E-governance; Crowds
Anania L, 2014	Digital Social Innovation	“Web platforms and the new forms of interactions promote value generating collaborations and social progress, which changes individual behaviour for the better.”	Social progress
Dulaurans M, 2014	Digital Social Innovation	“Model of cooperation through the sharing of singularities and the collective power that it engages and serving a better digital action.”	Crowdfunding
Rönkkö K, 2014	Social Innovation in a digital context	“New ideas that resolve existing social, cultural, economic and environmental challenges working in the fields of digital technologies.”	Digital technologies
Valsecchi F, 2014	Digital Social Innovation	“A recent label, that include the challenge of giving a clearer identity to the digital spirit that nurture our way of knowing, and living.”	Research cluster on digital tech.
Millard J, 2014	Digital technology in social innovation	“Use of ICT as online networks and other digital tools to support and/or enable social innovation or new approaches to meeting social needs which are both social in their means and in their ends, and which engage and mobilise the beneficiaries and help to transform social relations by improving beneficiaries’ access to power and resources.”	Online networks

Baeck P & Bria F, 2014	Digital Social Innovation	“A type of social and collaborative innovation in which final users and communities collaborate through digital platforms to produce solutions for a wide range of social needs and at a scale that was unimaginable before the rise of Internet-enabled networking platforms.”	Collaborative economy; openness, networks
Gordon E, 2015	Civic media	“The mediated practices of designing, building, implementing or using digital tools to intervene in or participate in civic life.”	Communication & networks
Kaletka , 2015	Digital Social Innovation	“A type of social and collaborative innovation in which final users and communities collaborate through digital platforms to produce solutions for a wide.”	Digital inclusion
Shea P, 2015	Digital Social Innovation	“The support and development of new digital solutions to address social challenges.”	Appropriate technology
	Civic media	“The mediated practices of designing, building, implementing or using digital tools to intervene in or participate in civic life.”	
Bellini F, 2016	Social Innovation	“New products, services or methods that tackle pressing and emerging social issues and, at the same time, transform social interactions promoting new collaboration and relationships.”	Digital Social Innovation
	Digital Social Innovation	“A way of indicating digitally enabled or supported social innovation.”	
Eckhardt DE, 2016	Digital Social Innovation	“ICT that enable social innovation providing an important contribution to social policy reform, providing new/better/different ways of integrating the provision of social services.”	Social Investment
Maiolini R, 2016	Digital Technologies for Social Innovation	“Novel solutions coming from information technology (IT) applications and tools to tackle social problems that are more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individual.”	Social innovation and Network analysis
McNutt JG, 2016	Civic Technology	“A nascent force in the relationship between governments and communities. It describes an emerging set of practices that proponents assert has the potential to remake communities and local-government organizations throughout the world.”	Digital technologies; Social media; e-government

Pelka B, 2016	Digital Social Innovation	"A type of social and collaborative innovation in which final users and communities collaborate through digital platforms to produce solutions for a wide range of social needs and at a scale that was unimaginable before the rise of Internet-enabled networking platforms."	Digital Commons
Rumbul R, 2016	Civic Technology	"Empowerment of citizens through enabling some form of civic or political participation and in facilitating the flow of official information, whether that be on a specific policy subject, a citizen complaint, or information on parliamentary proceedings."	Digital Democracy; e-government
Misuraca G, 2016	Digital Social Innovation	"A new configuration or combination of social practices providing new or better answers to social protection system challenges and needs of individuals throughout their lives, which emerges from the innovative use of Information and Communication Technologies (ICTs) to establish new relationships or strengthen collaborations among stakeholders and foster open processes of co-creation and/or re-allocation of public value."	Social Policy
Cangiano S, 2017	Digital Social Innovation	"A wide range of projects that use digital technologies, community engagement and collaboration, co-creation strategies and bottom-up approaches to solve societal needs, in opposition to the centralized proprietary solutions owned by a few companies."	Networks of openness communities
Hamburg I, 2017	Digital Social Innovation	"Digital technologies and the internet build innovations with a strong social impact."	Inclusive education
Gaggioli A, 2017	Digital Social Innovation	"An emerging approach in social innovation that leverages digital tools to address societal and environmental challenges."	Open source community
Stokes M et al., 2017	Digital Social Innovation	"A type of social and collaborative innovation in which final users and communities collaborate through digital platforms to produce solutions for a wide range of social needs and at a scale that was unimaginable before the rise of Internet-enabled networking platforms."	Social Investment

Along the literature review we have focused on selected terms where the use of digital technologies addresses social challenges. Our research reveals that academic work on this phenomenon began to emerge in the early 2000s from the field of civic engagement or civic action. Authors use different terms by selecting them according to the expressive needs and particular characteristics of the communicative context in which they find themselves. The classification on the basis of the context is the following:

- Digital context: Technologies of the citizens, technologies on civic life, social technologies, civic technology, tech for good, social tech, digital technology in social innovation, civic media, digital technologies for/in Social Innovation, internet ecosystems, Collective Awareness Platforms CAPS, networks of open communities
- Social context: Digital commons, eCommons, eDemocracy, eGovernance, social embeddedness of technology, civic engagement, and
- Innovation context: Social innovation and new technologies, technological innovation, Digital Social Innovation DSI, social innovation in digital context

Some researchers have considered most of these constructs identical and interchangeable (Stokes, 2017) however they are not always related to the three fields that composed the idiom as Table 1 illustrates.

3. Definition proposal and discussion

Taking into account these findings and the methodology formulated by Babbie, we propose as a starting point to articulate the knowledge base around the structure found in the definition of the terms that make up the idiom DSI. Focusing on the core component which is innovation, Schumpeter coined this concept as 'commercialized inventions on the market created by entrepreneurs' (Schumpeter, 1934). As a general rule, innovation is still perceived as a black box that apparently does not need to be explained (Mulgan, 2012) so as Table 1 shows, innovation is in this case considered a social phenomenon, a process, a tactic, a partnership, a mechanism, an idea, a system, a project, a model, an event, a label, a usage, a practice, a solution, a product, a service, a method, a way, an instrument, a force, an empowerment and an approach. Another aspect to be taken into account is the trend that emerges from the recent studies carried out for the European Commission by the most relevant researchers within the DSI ecosystem. Commercialisation of new prod-

ucts or services is not a key target. Consequently we can start by extending the initial market boundaries and considering innovation as a social organisational model. Model is a broader term and can embrace the other ones. We have found that the definition used by Bria considers DSI "a social phenomenon". Social phenomena include all kind of behaviour (which influences or is influenced by organisms sufficiently alive to respond to one another) (Markey, 1925), experience or interaction between individuals. However a model can be defined as "a representation of a target connecting a theory and a phenomenon" and also plays the roles of describing, enlightening and foreseeing them (Oh, 2010). This model approach facilitates operationalization considering that an organizational model can be structured in processes, allowing the identification of indicators with which to evaluate the performance of the different activities carried out in the initiatives or projects.

Furthermore, most of the definitions started from the social innovation field, so back in their theoretical foundation review, the social ends and means (Mulgan, 2012) should be included: 'Digital social innovation is an effective organizational model whose ends and means are social'.

Finally, the digital tools support the communities involved allowing everybody be connected to everybody else. These collaborative networks are known as all-channel or full-matrix networks (Arquilla J, 2001). Abstracting for our research DSI could be defined as follows: 'Digital social innovation is an effective organizational network model leveraged by information and communication systems (ICTs) whose ends and means are social'.

The next step would be to operationalize the nominal definition by describing the different dimensions of the model and constructing the indicators. The Oslo Manual provides some guidelines for all kinds of innovation models for collecting data on the general processes; the implementation of significant changes in these social infrastructures; the factors that influence digital social innovation activities and the outcomes of the DSI initiatives implementation. We hope that this discussion which takes into account the different backgrounds and sources will help to reach consensus among the wide range of communities involved.

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