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Social Network & Innovation Management. A Contribution To Risk Assessment

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Abstract

In an increasingly digitized world and after the disruption of the covid-19 pandemic, the internet and social networks are becoming the central backbone of interactions between individuals, organizations, and governments worldwide in general and defending the democratic values in Ukraine in particular. The influence capacity of social networks on creativity and innovation has grown in recent years and has been an objective of the study. This paper analyses the interaction between innovation and social networks from a balanced assessment, considering opportunities and risks. The interaction between social networks and innovation could redesign the value creation process. The proliferation of social media platforms coincides with the expansion of the open innovation paradigm and has demonstrated its efficiency in facilitating solutions in different fields such as science, statistics, engineering, production and the generation of social policies. On the other hand, risks have to be analyzed and mitigated. The social networks and search engines could have become a proxy for organizing and accessing information and knowledge on a large scale; however, evidence points out how the fake data and concentration could suffocate innovation. The research develops a theoretical framework to analyze how the organizational structure of social networks could influence the knowledge absorption capability and innovation; what is the influence of the social networks on creativity and innovation; and their role as drivers to create the social value. The results of the research could be practically valuable for many stakeholders: Chief Innovation Officers and Communication Managers, Teams responsible for Stakeholders Engagement and Open Innovation programmes, Policy Makers, and the Scientific Community interested in developing empirical research on the topic, as well as citizens to understand their role as change-makers contributing to developing Innovation and Creativity.

Keywords: innovation, creativity, social networks, social media, open innovation, social value, blockchain, artificial intelligence.

JEL Classification: O33, O3, L82, M31.

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1. Introduction

Innovation is a field of scientific study that has evolved and integrated many contributions, for more than 100 years. From a serendipity perspective to a more science-based approach, a common and shared body of knowledge emerged. Deep patterns of innovation encompass not only creativity but also a discipline applied to the practice of innovation, where the knowledge is continuously updated and valued, creating, experimenting and testing solutions that address problems and unmet needs.

Innovation knowledge could be to meet several types of needs, for example in the social scope for creating social innovation. The definition of the social innovation concept is understood from several perspectives by academia and empirical experts, as a result, there are numerous definitions. Some authors understand social innovation as "A novel solution to a social problem that is more effective, efficient, sustainable or fair than existing solutions, and so that the value created is mainly accumulated for society as a whole instead of individuals" (Phills et al., 2008).

Independently on the definition provided, there is a consensus about social innovation is a complex process, which requires collaboration between different actors and scopes with social, environmental and economic dimensions. Social innovation contributes to solving unmet social needs through open innovations, social movements, legislation, technologies, and new or improved products, processes, or services.

On the other hand, in the promotion of innovation, creativity and the development of new ideas and concepts, historically, social networks and specifically digital social networks have played a fundamental role (Mascia et al., 2012). Social media can allow a rapid expansion of social networks in the ways that people have access to content that could not be achieved before (Richey et al., 2016).

In addition to the importance of the innovation in the past allowing the growth, the interaction between innovation and social networks has demonstrated its efficiency and played a key role to face the covid19 pandemic, facilitating solutions in different fields such as science, statistics, engineering, production or the generation of social policies in general and for the development of vaccines in particular. In addition, this interaction is being critical key success factor in support to defend the democratic values in the Ukraine war.

In today's globalized and increasingly digitalized economy, the need to innovate to defend the competitive position of the organizations has become even more of an imperative. This interaction becomes more important to some critical cause factors such as the growing talent challenges related to the mobility and scarcity of skilled knowledge workers have provoked many organizations to rethink the conventional vertically integrated ideas generation and innovation model and integrate open innovation practices and decentralized approaches for innovating.

This paper has the purpose to analyze the interaction between social networks and innovation considering contributions from the literature review for subsequent empirical research about the use of social networks as an enabler for innovation and, on the other hand, their progress as adopters of innovative tools and strategies. This understanding allows the creation of a conceptual framework, which could be applied to analyze the use of innovation and social networks to deliver successful social innovation in general and to defend the democratic values from totalitarianism in the Ukraine war, in particular.

2. Literature review

The interconnections between innovation and social networks have been previously explored and investigated from different perspectives.

This paper summarizes the arguments and counterarguments within the scientific discussion on the issue. The core of the research will assess the interrelation between innovation and the social networks based on the scientific publications that use co-citation analysis, to assess which are the approaches most used by academia, identifying 3 main groups of interrelation:

Cluster 1: Organizational Structure, Knowledge and the Social Networks.

This article will focus to answer the question: How does the social network organizational structure influence the knowledge absorption capability and innovation?

Cluster 2: Creativity and Social Networks

This article will focus to answer the question: How do social networks influences creativity and innovation?

Cluster 3: Social Value, Social Networks and Innovation

This article will focus to answer the question: How the social networks influence the social value creation capacity of organizations in Innovation Ecosystems.

3. Methodology research and methods

The scientific and standardization literature review provides the core of knowledge and background from which to define the frontier between concepts and, on the other hand, assess the state of the art. This scientific research has been based on a qualitative analysis, which should be complemented by subsequent empirical analysis.

The research starts from the main assumption: social networks could play a fundamental role as drivers to promote creativity and develop and deploy innovation by allowing the development and expansion of content and knowledge.

To refute the research assumption, this study started with the individualized analysis of concepts. In the second stage, the researchers analyzed the interrelation between concepts to propose a conceptual framework from the systematization of the literary sources and approaches for answering the three main research questions.

4. Results

4.1. Concepts definition

The concept of innovation has been used to explain different realities, sometimes referring to meanings that are not the same. Contributions from researchers, in several scientific domains, created a discipline normally recognized as innovation studies. Being a cross-disciplinary field (Ritala et al., 2020), scientific studies reflect the evolution of the innovation models that have been trying to capture the essence of the innovation processes and the need to manage them. From being an emerging field, mainly developed after Schumpeter's legacy, innovation studies consolidated a scientific approach, applying research methods enabling to provide rigour to understand innovation and the innovation activities in a complex context of change and uncertainty.

The science of innovation is a field covering a wide space, in which the scientific method is applied to understand innovation and innovative activities throughout the entire life cycle. More concretely, Innovation is defined by the ISO56000 family of standards as a new or changed entity realizing or redistributing value, it can be a product, service, process, business model, or method.

Innovation is a source of economic and sustainable growth in a world where it is no longer just an aspiration but an imperative to respond to the unprecedented challenges facing our society. For organizations, it represents an engine to build and defend their competitive advantage from which to create value and/or maintain the value created.

To pursue sustainability and resilience, organizations have to learn from innovation failures, which represent a source of value and knowledge opportunities. To provide a clear understanding and define what a failure, is needed a good problem definition, proper design, and the development of a solution, appropriate and useful measures are

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critical for that process. In the process of learning from failures, social networks could play a key role as enablers of innovations and contribute to the development of Innovation Science.

Social networks exist everywhere, made up of groups of actors who share the same values and objectives (Mascia et al., 2012). However, there is a commonly misinterpreted exchange of the concepts between social networks and social media (Kava et al, 2017). Although they can both be in the digital universe, social media are the means by which a social network can communicate, interconnected through ties or social ties (Ciribeli and Paiva, 2011). However, the connections produced by social media are called digital social networks, represented by actors and their relationships (Recuero, 2009).

In addition, other authors highlight the need to distinguish complementarily between the concepts of social media and social networking. Essentially, social media is a platform for broadcasting information, whereas social networking is a platform for communicating with one another. Social media is a communications channel, whereas, in social networking, communication has a two-way nature (Froehlich, 2020). Some scientific research analyzes how the community studies the interrelation between both concepts from different perspectives (Kava et al., 2017) and the role of both, digital social networks and social media in Innovation.

Social Media can provide resources that facilitate innovation enabling the possibility of creating quick connections and developing new ideas, they provide an environment where stakeholders can seek suggestions, ideas, opinions, and other stakeholders (Richey et al., 2016)

Figure 1 represents the links between these interrelated concepts:

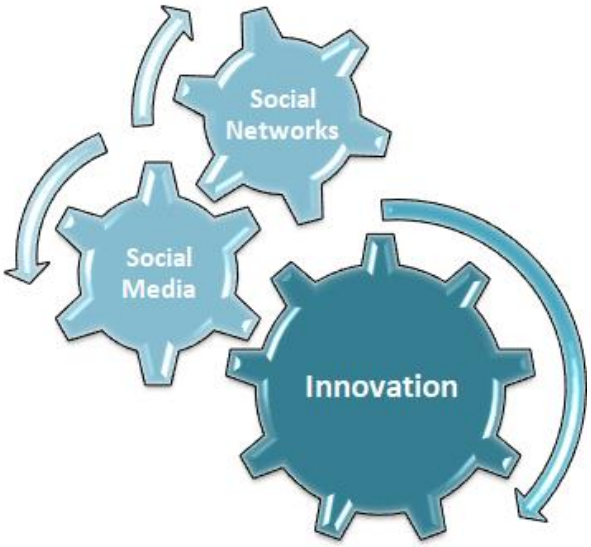

Figure 1. The interrelation between concepts

Source: The authors.

On the other hand, for people to develop new ideas and concepts, they must have the digital knowledge capabilities to use information technologies and communication skills, both critical in the process of developing creativity and technological innovations. Digital knowledge capabilities and communication skills become critical in the continuous process of internalization of concepts, understanding them and integrating with the information universe (Gilster, 1997).

Numerous studies in diverse fields have been carried out to recognize aspects of innovation in digital social media in various areas and disciplines (Kava et al., 2017), between them:

- Social media connections are crucial for the innovation process (Richey et al., 2016);
- Explore the use of social media forthe development of open innovation (Hitchen et al., 2017);

- Identify ways in which online relationships can provide benefits for companies (Tsimonis and Dimitriadis, 2014);
- Investigate the ability to use the information provided by social media as a source of information (Mascia et al., 2015);
- Examine the relationships between the drivers of innovation in customer co-creation in the context of social media. (Sarmah et al., 2018).

4.2. Analysis of the Interrelation between Innovation and Social Network

Some scientific publications have used co-citation analysis to identify which are the approaches most used by academia, according to the output of these studies 3 main groups of interrelation could be defined:

- Cluster 1: Organizational Structure, Knowledge and the Social Networks
- Cluster 2: Creativity and Social Networks
- Cluster 3: Social Value, Social Networks and Innovation

Cluster 1: Organizational structure and knowledge development

One of the questions this research pursues to reply is if the organizational structure of the social networks could impact the knowledge creation and diffusion of innovation. This research is focused on the literature review and several investigations that have analyzed which network structures favour the rapid diffusion of new ideas, behaviours or technologies, evaluating the impact of the structure from different perspectives.

Networks can be classified according to a multitude of criteria; this research highlights the classification based on the description of the way in which the actors (nodes) are connected. Based on this criterion, there are three topologies according to the graphs in which Paul Baran discussed the structure that the Internet should have (Baran, 1963) are:

1. Centralized network: all the nodes (actors) except one are peripheral and can only communicate through the central node. The fall of the central node deprives all other nodes of the flow.

2. Decentralized network: the central nodes of several centralized networks appear by interconnection. As a result, there is not a single central node but a collective hub of nodes. The fall of one of the centralizing nodes entails the disconnection of one or more nodes of the entire network, while the fall of the centralizing cluster would necessarily cause the breakdown or disappearance of the network.

3. Distributed network: Eliminating any of the nodes would not disconnect any other from the network. Thus, all nodes are connected to each other without necessarily having to go through one or more local hubs. The centre/periphery division disappears and therefore the power to filter the information that flows through it.

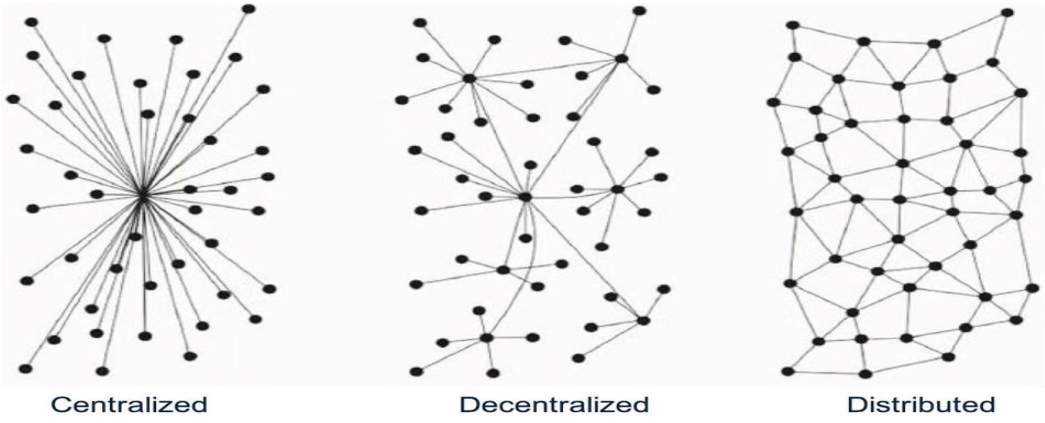

Figure 2. Three paradigmatic examples of network typology: centralized, decentralized and distributed

Source: Adapted from information available in: https://www.rand.org/about/history/baran.html

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To answer the research question: of how the social network organizational structure influences the knowledge absorption capability and innovation, and to analyze the diffusion of knowledge and innovation according to the organizational structure, this paper highlights from the literature review some studies that have characterized the convergence rate as a function of the structure of the interaction network, concluding that it seems that innovation diffuses much more slowly in well-connected network structures dominated by long-range links than in low-dimension ones dominated, for example, by geographic proximity.

After analyzing a great variety of social or technological innovations disseminated in a population through the network of individual interactions to answer whether the structure of online social networks favours the diffusion of all innovations, the evidence indicated that innovations spread rapidly on locally connected networks; geographic (or more general, finite-dimensional) structures favour such diffusion while high-grade nodules slow down the diffusion process (Montanari et al., 2010). In addition, researchers also provide evidence that the aggregate behaviour of the diffusion is indeed very sensitive to the mechanism of interaction between individuals. However, this research anticipates the hypothesis that the dynamics could be modified exogenously with the introduction of new technologies applications, for instance, search engines and Artificial Intelligence applications, or Blockchain developments in social networks.

The disruption of new technologies has redesigned the interaction in the social networks and their governance process, altering the way in which knowledge can be shared and innovation deployed. Researches point out that a possible future Blockchain presents a great global expansion of cooperative forms of ownership and management (Suarez et al., 2019). On the other hand, the diffusion of these technologies is also subject to a number of countervailing trends that could instead lead to greater inequality and business consolidation.

Some scholars argue that the deployment of Blockchain solutions, both by institutions of the cooperative economy as well as by the traditional state, could lay the foundations of a global technological commonwealth enacted through the use of advanced exchange, communication and decision-making technologies. Trends suggesting the emergence of a technological commonwealth include disintermediation; trustless sharing; increased user control of information and transactions; maintenance of high-quality; accurate data; durable decentralized networks that are difficult to hack; transparency; immutability; as well as faster and less expensive transactions. However, making a balanced assessment, there are numerous risks to mitigating and managing threats, such as unsolved technical challenges; an unstable regulatory environment; cyber security and privacy concerns; challenges to widespread user adoption; job loss due to automation and decreased corporate responsibility (Manski, 2017).

Specific current innovations in these decentralized networks range from collaborative governance voting systems and publicly-funded crowd-funding systems to transparent tracking of state spending and voter-based monitoring of electoral integrity, more recently Blockchain applications have allowed the quick donation to the Ukraine people facilitating funds in hours in a more effective way than the traditional bank transfer payment, which have implied days even months before giving access to the donated funds.

Blockchain technology could also disrupt creating businesses that run themselves with distributed and decentralized profit margins, management and services. These Independent Decentralized Autonomous Organizations (DAO) or decentralized autonomous corporations (DAC), redesign the role played by numerous actors and intermediaries within social networks, however, their deployment is limited, among others, by the additional level of experience and knowledge that is required to include smart contracts.

Cluster 2: Creativity and social networks

The interest to understand how social networks, and more concretely how social media due to raised importance of digitalization, influences creativity and innovation have grown in recent years. In the field of innovation, researchers have widely used a social view of innovative behaviour and a social network approach. Social media has been increasingly used as a lens through which to understand the effect of social context on creativity. These trends have led to a fusion of macro approaches to innovation with micro approaches to creativity.

However, the scientific literature and evidence have revealed inconsistencies, because, first while some authors conclude that networks facilitate access to new information and creativity; and consider that they facilitate

cooperation and Knowledge transfer; coupled with studies suggesting that bringing people together is essential for innovative activities. On the other hand, some research emphasizes the role of these structures as promoter's uniformity and lack of diversity, being the antithesis of creativity.

While scholars of creativity have mainly stressed the importance of generating or proposing a novel and useful idea, otherwise, innovation scholars have stressed the importance of idea implementation and its effects in the field. Some researchers have conceptualized the phases of idea creation from the ideation to the implementation analyzing the primary needs of each phase, and at the same time balancing contradictory research about the role of relationships and social networks in the whole process from creativity to innovation. This approach provides clarity on the social network drivers, however, also reveals a series of tensions due to the fact the network characteristics that facilitate one phase in some cases undermine the next stages. These potential contradictions and paradoxes could ultimately highlight why successful movement through all phases may be a rare and difficult occurrence. (Manucci, 2017).

Social networks can benefit the different stages of the interactive innovation process in different ways, for instance from the creation of crowdsourcing platforms to collecting ideas at the opportunity identification stage, using toolsets to improve concept creation and validation or relying on virtual product testing to develop and deploy solutions. To achieve this, companies must generate knowledge and systematic processes that allow them, among others, to establish conditions and incentive schemes to train customers to co-design, co-create products or help launch them, but also manage the risks of proactive participation through social networks, including coordination; control mechanisms and considerations in highly interactive social media platforms, with specific functionalities that evolve rapidly (Peter et al, 2013).

Social media have radically changed the way organizations and their stakeholders could interact, providing a wider range of interaction opportunities (Aral et al., 2011). They also represent a tremendous source of data and business intelligence, in the form of market insights and customer feedback, which can inform different stages of innovation processes. However, for these objectives to be realized, firms must use social media strategically and acquire organizational capabilities and define an effective strategy, to facilitate the creation and capture of value. (Muniger et al., 2019).

Innovation, marketing and general management research identify key resources and capabilities that can help companies leverage social media during their innovation process, based on the specifics of social media and innovation. The innovation management standards establish the need to identify and facilitate the appropriate resources to support the innovation management system in a timely manner, including people, financial resources and the time that can facilitate interaction with stakeholders. On the other hand, knowledge is also essential to support the innovation process and its strategy. The way in which organizations acquire, develop and use new knowledge determines the results of innovation (Grant, 1996). Some authors highlight that the knowledge obtained from social networks is the result of experience, which facilitates optimal learning behaviours (Nguyen, Bang et al., 2014).

Several capabilities can be applied to the use of social networks to support innovation, including the ability to collect information with increasing complexity due to the multitude and diversity of sources, as well as skills to identify, interpret and use relevant information. More specifically, market-based capabilities are needed to capture customer needs and understand and manage the change by which users transform from passive readers to active contributors, altering their role in the different stages of the interactive innovation process and creating both challenges and opportunities. (Muniger et al., 2019).

Considering that creativity and innovation are social processes, it is important to analyze how and when contextual characteristics are important. The literature suggests different degrees of desirable active participation of contacts and intentional action of the creators in the function of the stage of innovation development, observing that both the participation and the intentionality of the creators vary according to the stage.

Thus, in the initial generation phase, the interaction of the creator with others is not necessarily based on compliance with a predefined goal, compared to later phases where the creator can seek out others for more

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instrumental reasons. In later phases, for the implementation, in contrast, the need for a shared vision requires that contacts be formed and progress on the content of the idea collaboratively.

Some authors analyzed the social network drivers of the phases of the idea journey to advance from creativity to innovation. These researches identified different needs along a structured creativity process (Manucci et al., 2015). The pathway of this process and the needs required could be characterized as:

- Generation and the need for Cognitive Flexibility. The idea generation phase could be defined as the process of generating a novel and useful idea, this process concludes when the creator selects a unique and novel idea that considers more promising, useful or valuable than others. The generation begins with the creator's mind but is indirectly influenced by the social context. At this stage, therefore, the fundamental requirement is cognitive flexibility or the ability to change cognitive schemes and categories, with it the creator has the ability to integrate content from the social environment to generate new ideas that depart from existing practices within the field.
- Idea Elaboration and the Need for Support. The elaboration phase could be defined as the process of systematically assessing the potential of a novel idea and clarifying and further developing the idea. During this phase, the creator clarifies the initial idea and prepares it for sharing (unless the creator abandons the idea). During the development phase, creators need both emotional support to reduce uncertainty and feedback to help refine their ideas and solve challenges.
- Idea Championing and the Need for Social Influence and Legitimacy. The championship phase could be defined as the active promotion of a novel idea destined to obtain the approval of promotes the idea and consequently also obtain adequate resources for its development. To be successful, champions must possess influence and legitimacy. Influence is essential to protect ideas from invasion and criticism, remove obstacles to their acceptance, and persuade relevant decision-makers to provide approval and resources for implementation. In addition, the reputation of a creator and legitimacy could represent indicators of their potential performance and ability to implement an idea since decision-makers tend more likely to approve and support the ideas proposed by creators they perceive as legitimate and competent.
- Idea Implementation and the Need for Shared Vision and Understanding. The literature on innovation and team creativity has emphasized the importance of a shared vision for an effective implementation phase. Shared vision and understanding help to overcome interpretation problems and create a common language that allows the idea to be communicated correctly and to be interpreted and accepted successfully.

The complexity increase if the assessment also introduces the Innovation perspective and is based on the innovation interactive process defined by ISO 56002, where the innovation process is defined from five interactive stages: 1. Identify Opportunities, 2. Create concepts. 3. Validate concepts; 4. Develop Solutions and 5. Validate Solutions. (ISO, 2019).

According to the interrelation, this research align the need for cognitive flexibility for the first stages of the innovation process to identify opportunities and create concepts; the need for support is essential for both creating concepts and initiating the validate concepts stage; for finalising the validation of concepts stage and develop solutions is needed social influence capacity and to deploy solutions is needed to shares vision and facilitate understanding to the main stakeholders because without their engagement would be very difficult to deploy and scale the solutions. As the innovation process is interactive and non-linear, the combination of skills required to combine the creativity and innovation process in a successful way to deliver added value is diverse and according to studies not always frequent.

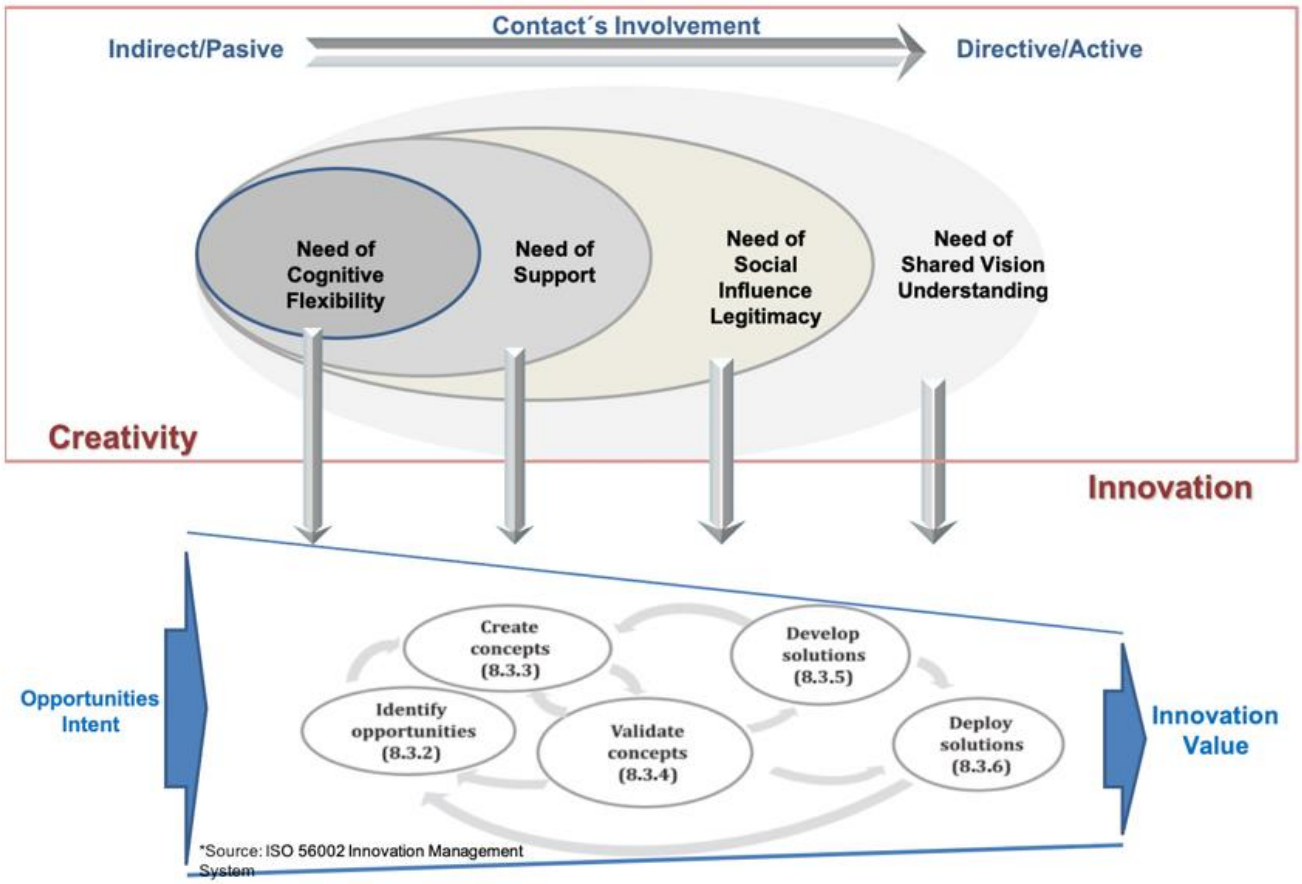

Figure 3. Interrelation between the pathway of idea generation and the innovation interactive process.

Source: Compiled by authors.

Cluster 3: Social value, social networks and open innovation

Surveys reveal that a significant percentage of companies use social networks to improve their innovation processes (Roberts, Deborah et al., 2016), benefiting from the content generated by users and social networks, with numerous illustrative cases that use this content as a reflection of the preferences of their consumers.

The capabilities of the network should produce innovative interactions that connect resources, knowledge and capabilities; creating unique knowledge through collaborations with various stakeholders (Kazadi et al., 2015) redesigning the value creation process and along the whole organizational value chain.

The value proposition of the interaction between social networks and innovation management could facilitate a common understanding of the directions of the entire innovation value chain when this understanding is provided by an interactive and transparent process where the social actors and innovators become mutually accountable to each other in the innovation process and its outputs developed from the lens of the social value of the product.

The social value assessment of these interactions requires a materiality analysis that allows identifying which impacts and which actions are relevant to the decision-makers and activities of organizations, facilitating develop a set of criteria to decide which of them are most significant. The materiality analysis complements the entire innovation management process from the design, development phase and implementation, which is a key to the inclusion of stakeholders to determine the importance of problems and impacts. (Lopez et al., 2020).

Empirical examples of this potential collaboration and creation of value in social networks are the collective awareness platforms in different areas such as sustainability and social innovation, such as the CAPSSI Initiative (CAPSSI, 2022). Promoted by the European Commission, these platforms, based on ICT systems, aim to

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maximize the 'network effect' through the design and launch of online pilots and to create stakeholders' engagement strategies for developing collaborative solutions targeting different types of problems. Examples include new forms of social innovation in emerging areas such as open democracy (enabling citizens' participation in democratic processes by developing and applying new tools); open policy-making (for better decision making based on open data); collaborative economy (for lending, exchange, swapping made to operate at scale); collaborative making (developing new ways of manufacturing), collaborative consumption or new collaborative approaches to inclusion, agriculture, health or disaster management.

The proliferation of social media platforms coincides with the expansion of the open innovation paradigm, integrating new ideas from internal and external sources, opening their value creation processes and collaborating with various internal and external stakeholders along the whole value chain, including customers; suppliers and employees.

Empirical studies highlight the increasing trend in the number of firms embracing open innovation open innovations, as democratized, participatory approach to innovation, however, the levels of open innovation adoption vary by industry and according to the size of organizations. Some survey results point out that larger organizations have higher rates of open innovation adoption than smaller companies, in special in key performance areas such as financial performance or innovative products or services offerings. On the other hand, the same research has identified some persistent barriers to adopting open innovation practices, such as the need for more investing time and resources, in addition, to the need to shift the organizational culture, so that managers and leaders could value and support new ways of thinking and working. For those companies able to make sustained changes to processes, practices and culture, the return on investment according to studies could be evident (The Open Innovation Barometer, 2022).

4.3. Social network & innovation management. A contribution torisk assessment

Although would be evident the power of social networks and more specifically of social media as an enabler for innovation and the creation of sustainable growth, also there are numerous scientific studies and evidence that show parallel to the great opportunities there are great risks that must be properly evaluated, managed and mitigated to unfold their full potential.

Social networks are reconfiguring the central nervous system of humanity in real-time, however, the evidence shows a crossroads between promise and challenge (Aral, 2021). Among the dangers to consider:

Lack of truth. Evidence shows the trend that Social networks are increasingly used to manipulate the truth, disseminating misconceptions quickly, making it difficult to discover the source of fake news online and avoiding consumers to discern reality from fiction, on the other hand, platforms and their advertisers reap the economic rewards of this online activity. Scholars in the dynamics of social networks point out some classification and digital systems verification tools, such as Blockchain, that could help authenticate.

The world faces what some authors call the "paradox of transparency". On one side is the need for researchers and the public to know what is happening under the campaign of social network platforms, to have a better understanding of where the data originates, how accurate it is, and what it is used for. At the same time, there is a critical need to safeguard the privacy of individual data and security. With unprecedented amounts of data on people and society, the key question is how could be balanced both needs? (Aral et al., 2021).

The lack of equity and the need to open social networks to new players. Research, the industry and policymakers agree there is a clear market concentration in the social economy, including mergers and acquisitions, API access and data access, all of which affect competition. Evidence shows how concentration suffocates innovation, harming advertisers and SMEs and leading to less competition for quality and privacy, pointing to one of the roots cause of the business model which amplifies conflicts (Aral et al., 2021).

The need for a human-centric design to alleviate the design flaws of artificial intelligence and social networks and their impacts, where evidence shows how algorithms are related to important problems including bias, racism, polarization, amplification of hatred and violence. In addition, some authors emphasize that social networks and

search engines have become a proxy for how to organize and access information and knowledge on a large scale (Aral et al., 2021).

5. Conclusions

The organizational structure of the social networks could impact the knowledge creation and knowledge absorbing capacity and the development and diffusion of innovation. Some empirical researchers signal the aggregate behaviour of diffusion is very sensitive to the mechanism of interaction between individuals and the structure of online social networks favours the spread of all innovations, highlighting that innovations spread rapidly in locally connected networks like geographic (or more general, finite-dimensional) structures favouring such diffusion, while high-grade nodules slow down the diffusion process. However, this dynamic could be modified exogenously with the introduction of new technology applications, for example, search engines and Artificial Intelligence applications, or Blockchain developments in social networks.

The influence capacity of social networks on creativity and innovation has grown in recent years, due to raised importance of digitalization. According to the research, the social networks, have been increasingly used as a lens through which to understand the effect of social context on creativityOn the other hand, some inconsistencies have been identified, because some authors conclude that networks facilitate access to new information and creativity by allowing cooperation and Knowledge transfer, on the other hand, others emphasize the role of these structures as promoter's uniformity, being the antithesis of creativity.

The role of the social networks to benefit the different stages of the interactive innovation process could change along the process in function of both the participation and the intentionality of the creators. To exploit the potential of social networks to promote creativity and innovation, an organization could use social media strategically and acquire organizational capabilities.

The interaction between social networks and innovation could redesign the value creation process. Some authors highlight, that the proliferation of social media platforms coincides with the expansion of the open innovation paradigm, through which organizations integrate new ideas from internal and external sources, opening their value creation processes and collaborating with various internal and external stakeholders along the whole value chain, including customers, suppliers and employees.

A balanced perspective also identifies several risks to mitigate, among them, the lack of truth, and the difficulty of consumers to discern reality from fiction; as well as the lack of equity and the need to open social networks to new players. Some experts have referenced evidence which shows how concentration could suffocate innovation.

The need for a human-centric design is requested by academia and industry to alleviate the design flaws of artificial intelligence and social networks and their impacts, where evidence could disclose how algorithms are related to important problems including bias, racism, polarization, amplification of hatred and violence. In addition, some authors emphasize that social networks and search engines have become a proxy for how to organize and access information and knowledge on a large scale.

The research outcome can conclude the potential role of social networks to promote creativity and innovation. However, fundamental risks and important threats must be managed and mitigated. The results of the research could be useful as a conceptual framework, that is applied to the social innovation and could be relevant to evaluate between others the role of the social networks in the Covid-19 crisis management or to analysing the fundamental role that social networks have been playing to support Ukraine's citizens in the creation of tools and solutions, facilitates humanitarian aid, and defend democratic values in the war.

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