


# THE INNOVATION IN THE CONTEXT OF THE INFORMATION SOCIETY

A INOVAÇÃO NO CONTEXTO DA SOCIEDADE  
DA INFORMAÇÃO

<sup>1</sup>Kilma Gonçalves Cezar  
<sup>2</sup>Emir José Suaiden  
Universidade de Brasília<sup>1,2</sup>

## *Correspondence to Author*

Kilma Gonçalves Cezar  
Universidade de Brasília  
Brasília, DF – Brasil.  
E-mail: [kilmagc@yahoo.com.br](mailto:kilmagc@yahoo.com.br)  
 ORCID: <https://orcid.org/0000-0002-5960-8585>



**JITA:** BG. Information dissemination and diffusion.

**e-Location:** 019026

**ABSTRACT**

This article aims to call attention to the importance of publicizing the innovation process in Brazil by working with the following idea: the collection and management of information and knowledge of ordinary citizen can be seen as a tool to increase the innovative capacity of the country. A short review of the literature on the contemporaneous dynamics characteristic of the new economic-technological paradigm of information was carried out, studies were collected on the involvement of the ordinary citizen in the innovation process, and models developed aimed at the systematization of newness were disputed. The authors conclude that Brazil, by not publicizing innovation, that is, to contemplate the free and public flow of ideas, information and experiences may be failing to promote its innovation potential.

**KEYWORDS**

Information. Innovation. Citizen

**RESUMO**

O presente artigo se propôs a lançar luz sobre a importância de se publicizar o processo de inovação no Brasil, trabalhando a seguinte ideia: a coleta e a gestão de informações e de conhecimento do cidadão comum podem se revelar uma ferramenta destinada à ampliação da capacidade inovativa do País. Para tanto, foi realizada breve revisão da literatura acerca da dinâmica contemporânea característica do novo paradigma econômico-tecnológico da informação, foram levantados estudos sobre o envolvimento do cidadão comum no processo de inovação, e foram discutidos modelos desenvolvidos voltados para a sistematização da inovação. Os autores concluem que o Brasil ao deixar de publicizar a inovação, ou seja, de contemplar o fluxo livre e público de ideias, de informações e de experiências pode estar deixando de impulsionar seu potencial de inovação.

**PALAVRAS CHAVE**

Informação. Inovação. Cidadão.

## 1. Introduction

In the contemporary world, conceived from the new economic-technological informational paradigm whose logic is in the creation, management, dissemination and appropriation of information, ideas and knowledge, the participation of ordinary citizens in the treatment of themes such as innovation, in the case of this article, the innovation can be a facilitating tool for expanding the country's innovative capacity.

This new information paradigm, which underpins the information society, is associated with the restructuring and expansion of capitalism, and its logic lies in the high penetrability of information, knowledge and innovation in economic, social and human relations; in the organized structure in social and electronic networks; in the reversibility of processes and products from the use of technologies; in the globalization of economic activities and in the convergence of technologies involving different areas of knowledge (CASTELLS, 1999).

According to Castells (1999), the transition between two different forms of production, based on economy of scale, cost reduction and production gains known as industrialism, and the other, based on the more intensive application of information and knowledge in the productive processes, informationalism. For the author, this transition translates into the new economy, called information economy whose characteristic lies in the centrality and application of knowledge, ideas and information in the generation of new products and services.

With regard to the publicizing of innovation, it is a recurring theme in studies such as the ones mentioned below, which deal with the importance of accessing and valuing the participation of ordinary citizens, through models that contemplate the free flow of information, ideas and knowledge, formed in the historical-socio-cultural practices, in front of the innovation process.

Mueller (2002) ensures that the dissemination of results of scientific and technological research and access to the ideas and questions of ordinary citizens are fundamental to increase awareness about science, technology and innovation, as well as their importance in the day to day. people's day And this interaction with the public establishes links between science, knowledge and cultural values, and these can reveal breakthrough discoveries.

This understanding is reinforced by Suaiden and Leite (2016) when they affirm that the trajectory of the development of a society begins when the man enlarges the conscience from the access to the knowledge. And, regardless of cultural differences and levels of development achieved by citizens and societies, science and technology segregate, congregate, exclude and include, reflect and foster the evolution of humanity.

The publication of science, technology and innovation finds support in the report of Professor Ildeu de Castro Moreira in a lecture given at the National Science and Technology Week (SNCT) in 2015, when he assures that people value and have an interest in science and technological innovation, so it is necessary to learn to talk and show the common citizen that science, technology and innovation are collective and social constructions.

Concern about the publication of science, technology and innovation resonates in the so-called "Citizen Science", which consists of citizen participation in the process of research and scientific production (HAKLAY, 2013). In spite of shedding more light on the participation of local populations in biodiversity conservation initiatives, the Citizen Science projects foster the effective involvement of citizens in the entire research and scientific production chain, which allows for the appropriation of knowledge generated by research, and its results.

In this sense, it is understood that the participation, interaction and involvement of the citizen in production and in scientific and technological research allows integrating science and technology in popular culture by promoting citizen participation, or even, the social inclusion in subjects of CT & I.

And this inclusion would translate into the transposition of ideas contained in scientific and technological research for people's daily lives, causing phenomena and scientific and technological methods to become subjects of opinion, behavior, culture and public debate.

However, when looking for data and indicators on the status of society's access to production and scientific and technological information as well as innovation, it is not representative.

According to the National Survey of Public Perception of Science, promoted in 2010 by the then Ministry of Science and Technology - MCT, of the 2,016 people interviewed in various parts of the country, 19% reported that they watch television programs that deal with themes for the scientific field, 14% read newspapers that approach the subject and 13% make use of magazines and also the Internet for the search of scientific and technological information, representing with this a significant increase of this access considering the same research done in 2006 where 9% used the Internet to search for information about science and technology and 15% used television for this purpose.

It is thus argued that access to scientific and technological information on the part of society has advanced, but that the numbers are still not very representative. It was concluded from the research's conclusion that discussions on science and technology are restricted to academic forums and government agencies.

When consulting on the innovation indicators in Brazil, it is verified that Brazil has remained in a context of little success in the development from innovative initiatives.

According to a study conducted by the World Economic Forum, Brazil went from the 50th position to the 68th in the world innovation ranking, and in relation to the Latin American countries it fell from the 3rd to the 7th position.

Regarding the National System of Science, Technology and Innovation - SNCTI, although it evolved from a simple structure, based on development agencies to a complex structure with capillarity considering its ministries, secretariats, research institutes, universities, companies and other institutions, it can be seen that this evolution has not yet translated into effective advances in support of innovation in the country. Research and development (R & D), proportional to GDP for 2016, represented 1.24%, with only 0, 2% since 2000<sup>1</sup>.

And, in relation to the academic environment, where the discoveries are usually unfolded in dissertations and theses, it is verified that, rarely, these generate benefits to society from the application of the knowledge now produced in the innovation of products and services. According to data published by the IBGE - PINTEC 2008 Technological Innovation Research, Brazil produces a volume of scientific knowledge (measured by the number of articles) asymmetric in relation to innovation (measured by the number of patents deposited).

When seeking a technical position on this context, it was verified that technological innovation, as a provider of productivity and development, has been treated as coming from the university / enterprise partnership, and that some of the main obstacles to the focus on the inability of institutions to manage innovative processes as they maintain the bureaucracy and inefficiency of the practice of innovation management<sup>2</sup>.

Innovation management is understood as an activity that allows the organization to make better use of science and technology, generated internally or externally (COTEC, 1999).

Given this context, where on one side there is the new economic-technological informational paradigm in which it is imposed the generation of new knowledge and innovation for the achievement of development, on the other, studies that point to the importance of valuing the participation of ordinary citizens in the creation of innovative ideas; and, finally, statistical data that indicate Brazil's difficulty in achieving development from innovative initiatives is that it is interesting to work with the theme:publicizing the innovation process impacting the country's innovative capacity in the context of the information society.

The article is structured in three parts: the first part contemplates a brief commented revision about the advent of the new economic-technological paradigm of information, without the pretension of exhausting the debate, but of highlighting passages considered important. The second will present some studies that support the idea of the importance of the involvement of

---

<sup>1</sup> See <http://irisbh.com.br/indice-global-de-inovacao-2016/>

<sup>2</sup> See BBC article in full file: <C:/Users/wilson/Downloads/artigo.pdf>. Access in: May 2017.

ordinary citizens in the process of innovation. In the third and final part, the process of innovation will be addressed.

It is worth clarifying that, in order to understand and explain the object of study, we intend to use as an analysis method an interdisciplinary procedure applying it in the comparison of texts and authors that deal with the subject matter.

The methodology consists in the use of literature, documentary research, of articles and articles of journals seeking to include contributions from the authors mentioned above. It is intended from the literature review to discuss the data collected and extract understandings that may contribute to the understanding and explanation of the research object. This method is related to the exploratory qualitative research which, according to Gil (2002) and Malhotra (2001), which provides from small samples, perceptions and understandings of the problem and its subjectivities, as well as the explanation of phenomena that were not considered, although evident. Gil (2002) argues that qualitative research with an exploratory approach is a research method used to understand the problem and the factors underlying it. The view of Malhotra (2001) contributes to this line of thought, because for the author, qualitative research is defined as a "... unstructured, exploratory, small sample-based research that provides insights and understanding of the context of the problem being studied" (MALHOTRA, 2001, p. 155).

Thus, following this methodological line, it is understood that exploratory qualitative research provides better insight and treatment of the object of study, and represents an important means for understanding subjective aspects, since it shelters interpretation techniques that seek to translate, decode and describe terms and themes related to the understanding of the object of study.

## **2. The New Economic-Technological Information Paradigm**

The term 'information society' or information society as prefers Castells (1999) has been used to convey the specific content of the new economic-technological paradigm of information whose structure and contemporary dynamics are impacted by the information infrastructure.

In this new dynamic, the productivity and competitiveness of companies, regions and nations depend basically on their ability to efficiently generate, collect, manage and use knowledge-based information and ideas in the generation of innovation. It is, therefore, a system whose knowledge and management of ideas are decisive elements for the production of innovations and consequently for achieving growth with development.

Without ignoring the importance of traditional factors of production (labor, natural resources and capital), from the point of view of innovation, knowledge assumes a preponderant role in the reordering of the economy, opening new frontiers for the pursuit of development, since the dimension to demand the management of knowledge for the production of new knowledge that can generate technological innovation, in order to achieve the creation and distribution of new technologies and other forms of knowledge involving the productive sectors (NICHOSKY, 1999).

Such an approach points to a close relationship between growth and development that occurs with the introduction and dissemination of innovations. Therefore, the development would be characterized by the rupture of the flow of production, from technological innovations which would occur discontinuously over time. For Freeman (2002), institutions that deliberately promote the acquisition and dissemination of knowledge further promote innovation, which leads to greater productivity and competitiveness. And according to Schumpeter (1982) when establishing the relation between innovation and the increase of productivity comes the development.

With this, the discovery of strategies and the construction of tools for the effective use of knowledge become increasingly important for the pursuit of development. The power of creative ideas and the domain of information and knowledge are driving the new economy to produce high technologies and services of high competitive value, interfering with the development of a country (OCDE 1999, LASTRES, H., CASSIOLATO, JE, 2003).

In this contemporary dynamics, innovation can be considered as one of the keys to a country's development process, since this development is achieved through changes from the inside out, from the constant launch of innovations in the market due to the technological qualification, investment in research and development, greater market strength and financial structure of companies and organizations (Schumpeter, 1982).

As a concept of innovation, Freitas Filho (2013) claims that it is about people's ability to use their knowledge, skills and creativity to generate change that generates a new technology, a new product, or that changes the status quo of a service, product, or even in the creation of a new market that has not yet been exploited in a way that positively impacts the development of society (Freitas Filho 2013, p.5).

In this sense, development is understood as a result of economic growth linked to the improvement of people's quality of life. The following statement helps to understand this process.

Development should include changes in product composition and allocation of resources across different sectors of the economy in order to improve indicators of economic and social well-being - poverty, unemployment, inequality, health conditions, food, education and housing (VASCONCELLOS and GARCIA, 1998, p. 205.)



When introducing the dimensions of economic and social well-being in the definition of development, the authors Vasconcelos and Garcia (2005) bring to the fore a sociological approach to development, which defends it as a condition or process that provides improvements in the quality of life of people and society in general, placing on a secondary level the importance of attributes such as possession of physical resources, capital and income.

From this perspective, Veiga (2006), following the line of reasoning of Amartya Sen (2000), adds aspects of sociology in the understanding about the development process, which allow a new look at the question. For the author, the historical-socio-cultural experience of ordinary citizens can be a contribution to innovation, and development occurs when new ideas generate socioeconomic changes which expand the freedom and ability of people to make their choices to be and have the life they really want. According to Sen (2000) development improves not only the quality of life, but also the productive abilities of the people and, consequently, the reduction of social vulnerabilities.

In this sense, it can be seen that besides the economic purpose, the participation of the social segment, as a means and end of the process, can also occupy space in the context of development, based on innovation. This statement is reinforced by Dagnino (2009) when he emphasizes that the process of transforming information into knowledge, from tacit to explicit, knowledge in innovation involves the participation of ordinary citizens in what corresponds to their education processes, their culture, and practices, thus generating a new socioeconomic development dynamics (DAGNINO, R. et al., 2009).

Following this reasoning, it is verified that innovation, as a process that considers the performance of the citizen, presents itself as one of the driving forces behind the reach of productivity linked to growth, which is linked to development, and this to the economic and Social.

FINEP (2000) considers as innovation for social development the creation of original technologies, processes and methodologies that may constitute proposals for new models and paradigms for coping with social problems, combating poverty and promoting citizenship.

For the authors Cezar, Gomes and Persegona (2011) the economic segment of development, based on innovation, contemplates the new technologies and products, achieved with the dissemination and use of knowledge. While the social segment is related to overcoming inequalities and social vulnerability through the creation of qualified employment and higher value-added in production (CEZAR, K.G. GOMES, C.B., PERSEGONA, M.F.M, 2011).

In line with these assumptions, the term 'social innovations' was coined to refer to the scope of development aimed at meeting human needs.



For André and Abreu (2006) social innovation is understood as a new action, socially recognized, aimed at social change, which contemplates interaction with the common individual.

The Institute of Social Technology - ITS (2007) argues that by including the term social innovation, brings the socio-environmental dimension, the construction of the democratic process and the goal of solving the main needs of the population to the center of the development process. According to Castor (2007: 77), social innovation comprises "the search, discovery, experimentation, development, imitation and adoption of alternative social arrangements - to produce something," these arrangements being new ways of organizing production.

In this way, the development would be associated to the convergence between socioeconomic demands and new ideas and knowledge, in order to reach the improvement of the conditions of life, considering as an influence factor the interaction with the common citizen.

In view of the above, it can be seen that the structural changes brought about by the new economic-technological paradigm, characterized by the transition from industrialism to informationalism, constitute presuppositions and proposals of new practices and paradigms for the confrontation of socioeconomic problems. contemporary innovation to conceive innovation not only as a technological and commercial invention, but also as an idea or knowledge, coming from the citizen's involvement, with capacity to provide improvements in the country's productivity, to add social value and to promote people's quality of life, contemplating the yearnings of the social and economic segments of society.

### **3. The Involvement of the Citizen in the Innovation Process**

The imposition of the new information paradigm to elaborate new practices and products to address socioeconomic problems points to the need to think about democratic models that value citizen participation in the collection and management of information, ideas and knowledge.

In these democratic models informal knowledge, now acquired through non-formal learning and experiences, outside the school sphere, gains visibility and can be as relevant for problem solving as formal knowledge treated as a structured knowledge generated by specialists and institutions of the S & T system.

In this sense, the adoption of practices related to the development of innovation involving citizen participation can contribute to the expansion of the country's innovative capacity, considering that broad access to information, knowledge and ideas, and their collection and management can facilitate the generation of new products and services.

The participation of the citizen in the innovation process finds theoretical support in some of the studies mentioned below, which analyzed the process of generation and sharing of knowledge from the spatial and socio-institutional dimensions that involve it, and from the importance of informal knowledge for the generation of innovation.

In the model of public participation, which is based on the commitment to democratize formal and informal knowledge, the emphasis is not only on its diffusion, but on how the individual participates in his ideas and knowledge, how these are appropriate and integrated with other knowledge and how, from it, new products or services are created. Thus, the necessary condition for development lies in the appreciation of the dialogue between specialists and nonspecialists, as well as in the cultural dimension in which knowledge is embedded (LEWENSTEIN and BROSSARD, 2006).

In this perspective, Suiden and Leite (2016) coined the term 'infoculture' when they defended that information and culture were always present in the understanding and analysis of the flow of the history of human trajectory, and that the interaction between them impels new leaps for the future of humanity. For the authors, the historical and evolutionary process of societies is formed from a systematization of predominant values in socio-cultural dimensions of each age considering the interrelationship between information, its registration, its processing, its use and its interaction with the culture present in the constitution and the development of society.

For Bourdieu (1983) the average citizen is related to the objective and structural conditions of the social space in which he lives, acting through a habitus, understood as a set of values and customs that guides his practices.

Following this line of reasoning, Morin (1996) is used when he clarifies that the actions of individuals affect reality, which is in constant movement, contributing to its maintenance and / or its transformation.

... society is undoubtedly the product of interactions between individuals. These interactions, in turn, create an organization that has its own qualities, in particular language and culture. These same qualities are retroactive to individuals since they come into the world, giving them language, culture, etc. This means that men produce society, which produces individuals (Morin, 1996: 48).

In the sociocultural context, according to Albagli and Maciel (2004) knowledge differs according to its origin. Knowledge from local communities differs from that of experts; just as that of economic agents differs from that of social groups; profit-making enterprises of public undertakings; the regional arrangements of the productive networks. This differentiation draws attention not only to the diverse origins of formal knowledge, but also to the results of knowledge flows, their constraints, their interactions and their products. With this, the adoption of a new methodology for collecting, treating and disseminating information and knowledge allows the generation of collective knowledge and local intelligence.

For the authors Albagli and Maciel (2004) collective knowledge occurs when several people from a locality or company exchange knowledge, information and practices about the same product, thus forming, often, a community for the development of something. And, local intelligence uses territoriality and local knowledge derived from experience originating from local production networks for economic or social development (ALBAGLI, S. MACIEL, M.H., 2004).

According to the Oslo Handbook (2004), human, social and cultural factors such as informal interactions, ease of communication, cooperation and transmission channels of information are identified as of great importance for the attainment of innovation, since they can provide greater diffusion of knowledge to a large scale of individuals.

When analyzing the determinants of productivity it is verified that the provision of environments free of hierarchies for dialogues are facilitators of the exchange of informal knowledge, and from the dissemination of knowledge it is possible to identify continuous improvements in products and processes, translating into discrete innovations that impact the optimization of labor and the reduction of gross capital investment (SOLOW, R. 1997).

This presupposes that the spatial dimension of its social, political and economic specificities generates an innovative dynamic derived from the particularities of the local productive and historical culture, which in turn can contribute to the creation of a system of local and this may have consequences on socioeconomic development.

This assertion supports the idea that valuing socio-spatial differences in the collection, management, and use of information, ideas, and knowledge, ie, publicizing the innovation process, can increase access to other types of knowledge beyond formal knowledge, and this can generate innovative ideas and these can impact substantial changes in the search for socioeconomic development

## 4. The Innovation Process

The term new economy or informational economy, as Castells (1999) prefers, arouses interest in several fields of activity, but has a particular interest in those working in science, technology and innovation - CT & I. In this new economy, the path of innovation generates opportunities for economic and social gains and reinforces the understanding that managing knowledge, innovations and changes are essential to development.

For Sveiby (1998) in organizations involved in science, technology and innovation (CT & I) activities, or in research and development (R & D) environments, where the transformations caused by the adoption of a new information paradigm are imperative to manage the intangible process: information, knowledge and innovation (SVEIBY, 1998).

In this perspective, Freitas Filho (2013) ensures that for the occurrence and management of the innovation process it is necessary to involve knowledge, creativity and entrepreneurship. Knowledge, for maintaining a direct relationship with innovation, since there is no occurrence of innovation on a subject if there is no full knowledge about it. Creativity, because it is considered the driving force of innovation, because without it there is no way to be effective the creation of the new. And entrepreneurship because it is through him that the innovative idea is put into practice. (Freitas Filho, 2013).

There is another aspect related to innovation that is the plurality and diversity of those involved in the process. Innovative activities require that "people with different knowledge, culture and profiles work together to develop innovation" (FREITAS FILHO, 2013: 13).

Regarding the different knowledge, Nonaka and Takeuchi (1997) observe that the creation process takes place from the social interaction between tacit and explicit knowledge. Being this, the knowledge of the rationality, of the formality expressed in numbers and words can be stored in books, handbooks and computers, and that, the subjective, the unconscious, coming from the experience and perception of each individual. (Nonoke, Tookeuch, 1997).

As for plurality and cultural diversity, it is a source of social and economic dynamism and can arouse curiosity, generate new ideas and direct a useful contribution to the improvement of people's style and standard of living. Cultural diversity presents a twofold challenge: to ensure harmonious coexistence between groups of different cultures and the defense of creativity through innumerable cultural expressions. In this sense, culture is important for the consolidation of a knowledge-based economy, because it enriches the human condition, stimulating creativity and fostering innovation<sup>3</sup>.

---

<sup>3</sup> Okinawa Declaration, July 2000, Ver <http://www1.folha.uol.com.br/fsp/dinheiro/fi2407200013.htm>, accessed in 15/06/2016.

As for the profile of people involved in the innovation process, Freitas Filho (2013) describes four types of profiles: the idealizer (innovation often comes from a creative idea / flash); the refiner (deals with conceptualization and the search for inconsistencies of ideas); the experimenter (tests the quality / performance of the idea before being taken as a product to the market); and, the executor (turns the idea into a business) (FREITAS FILHO, 2013).

Thus, innovation can be conceived as a process, and manageable, rather than an isolated event. This perception finds support in the 1945 report *Science, the Endless Frontier*, authored by Vannevar Bush, which disseminates the dynamic conception of innovation, using the models for analysis of the relation between science and technology, entitled "linear model of innovation", which established a new paradigm of policy and scientific and technological management, adopted in the late 1950s by most industrialized countries.

In the linear conception, the technical change was understood as a hierarchical sequence of stages, where it passed, in a successive way, from basic or basic research (science) to applied research (technology), and from it to experimental development and consequent production and marketing (innovation).

In this process new knowledge from scientific research would lead to processes of invention that would be followed by applied research and technological development, resulting in the end of the chain, in the introduction of marketable products and processes (BUSH, 1945).

For Viotti (2003), this conception introduces the perspective in which the analysis of the processes of production, use and diffusion of ST & I should consider the simultaneous influence of institutional and socioeconomic aspects, and these linked to the different areas of knowledge. With this, the innovation presents itself as a multidisciplinary process, organized, continuous and permanent.

In the 1980s, as a result of the studies by Kline and Rosenberg (1986), the linear conception was considered to have been superseded by the claim that the innovation process does not follow a hierarchical sequence and does not consider the interactions between science and technology in its development.

Thus, the interactive model of the innovation process, also known as the "chain links" model, was introduced, which gives companies a central position in the innovation process. In this model interactions are established between the science and technology system and companies, and between the companies themselves. Innovation is considered a complex process of interactions, involving all agents involved in the various stages of the innovation process, namely: companies, research institutions, universities and the market (Kline, Rosenberg, 1986).

According to the Oslo Handbook (1997), the innovation process combines the scientific, technological, organizational, financial and commercial steps that lead or are intended to lead to the implementation of innovations, including R & D. In this sense, the chain model considers the opportunity to transform the innovations of products and services into business models.

Focusing on the structuring of innovation management, Freeman (1987) signals the need for a broader view of the innovation process, inserting it in the context of a system of innovation formed by a set of actors and an institutional context which determines the functioning of the system and shapes the behavior of the actors. This structure, apparently more complete and close to the complexity of reality, has been translated into the systemic approach to the innovation process, which involves a network of public and private institutions whose interactions and activities initiate, modify and diffuse new technologies (Freeman, 1987) .

However, for authors Davila, Epstein and Shelton (2007) to think the process of innovation implies considering the systemic approach linked to the complexity of the new product development process, which involves boosting the company's revenue growth and increasing profits, and concomitantly improve relations with interest groups and motivate employees. For the authors, therefore, innovation needs to consider the mixture between the old and the new, supplanting the unison understanding that for the creation of something new one must destroy the old, and its occurrence needs, first of all, good ideas.

In this sense, considering that innovation has a preponderant role in the success of companies, innovation management systems should consider the signing of policies, procedures and mechanisms for the treatment and management of information and ideas. These directions allow the occurrence of innovation without taking focus the value to be generated for the client, the ability to visualize new preferential segments in the market, to facilitate the interaction of the company with the science and technology system and interest groups, besides to support the organizational decision-making process (DAVILA, EPSTEIN, SHELTON, 2007).

For the implementation of innovation management systems, according to Davila, Epstein and Shelton (2007), it is necessary, before any financial investment, commitment and availability, a cultural change, therefore, in order to achieve innovation, it is necessary to have ideas management. According to the authors, innovation must be viewed as a flow that begins with a flood of ideas, which go through the process of appreciation, selection, investment and execution, until only the best ideas are directed to the commercialization.

This perception is supported by Suaiden and Leite (2016) when they argue that there is now a new way of perceiving science, technology and innovation, as knowledge evolutions that extrapolate concepts and processes based on observation, method and experimentation,

but by adding to these social and cultural values which take shape in the flow of the reality that surrounds them.

Thus, the new innovation system, created by Davila, Epstein and Shelton (2007), begins with a creative phase, which is characterized by the torrent of creative and welcoming ideas. After this phase, the process of selection of ideas begins, many of which are rejected. The selected ideas receive a large amount of resources and advance to the execution stage. Ideas with the potential to transform into intellectual property advance to the stage of value creation, ending with marketing, if appropriate.

In view of the above, it can be seen that the design of the innovation process has evolved, over time, from models that try to systematize innovation.

Initially, in the linear and hierarchical model, the innovation process began with fundamental research, moving to the stage of applied research, reaching the product development and its commercialization. In the model of the chain links innovation happens from a set of interactions and interdependencies within and between companies, and with interest groups. In the systemic approach model, the innovation process is part of an innovation system composed of interdependent actors and institutions. And in the model of Davila, Epstein and Shelton (2007), innovation happens from the flow of ideas, which travels evolutionarily through the stages of creation, management, dissemination, appropriation and commercialization.

In this sense, it is explicit the alignment between the authors Davila, Epstein and Shelton (2007) on the innovation process and the contemporary dynamics characteristic of the new information-based economic and technological paradigm, in which productivity and competitiveness of companies, regions and nations depend basically on the ability to efficiently generate, collect, manage and use information, ideas and knowledge in the generation of innovation.

This harmony supports and reinforces the assumption that the free flow of information, ideas, and informal knowledge that formed in historical-socio-cultural practices, coming from the common citizen, can prove to be a facilitating tool for expanding capacity innovation in the context of the information society.



## 5. Conclusion

The article proposed to shed light on the importance of publicizing the innovation process in Brazil, working the following hypothesis: the collection and management of information, ideas and knowledge of the common citizen may prove to be a tool for the expansion of capacity of the country in the context of the information society.

It was possible to verify, throughout the article, that the hypothesis now raised finds theoretical support in the new economic-technological paradigm of information that has characterized the informational society according to Castells (2009) and, in the model of the innovation process, defined by Davila, Epstein and Shelton (2007), which begins with a "torrential" flow of creation, that is, from many ideas which are appreciated, some chosen and marketed.

Considering that the new informational paradigm is characterized, among other aspects, by a close relationship with economic growth based on technological innovations, which come from a contemporary, systemic, informal, non-linear, or hierarchical dynamics of organizing, (Castells, 2009), there is a syntony between this dynamic and the model of the innovation process defended by Davila, Epstein and Shelton (2007) in which innovation can arise from a large volume of ideas, often considering the mixture of the past, of history, of culture and of the present, of contemporaneity, which, after its management and appropriation, may or may not lead to commercialization.

In this way, it is possible to verify that the propósisto of this article is based on the contemporary dynamics of Castells (2009), and the model of the process of innovation of Davila, Epstein and Shelton (2007). And, this finding sheds light on the importance of publicizing innovation in Brazil.

It should be noted that this confirmation leads to a rupture of the current pattern of exploitation of knowledge and ideas in the generation of the new one, in force in Brazil, since the contribution to innovation used by the National Science, Technology and Innovation System ( SNCTI), has as specific source of input, the academy and the company.

It is understood, therefore, that, not publicizing the process of collecting and managing a creative idea, can contribute to the difficulty of innovating in Brazil, because despite initiatives, laws and policies for stimulating and investing for innovation is recurrent the concern on how to appropriate and transform knowledge into innovative practices<sup>4</sup>.

---

<sup>4</sup> According to the Global Competitiveness Report 2012, Brazil is the 53rd country in the world in terms of innovation, five positions higher than its ranking in the Global Innovation Index.

[http://www3.weforum.org/docs/WEF\\_GCR\\_Report\\_2011-12.pdf](http://www3.weforum.org/docs/WEF_GCR_Report_2011-12.pdf)

<https://www.globalinnovationindex.org/gii/main/fullreport/files/Global%20Innovation%20Index%202012.pdf>

At the opening of the 68th Annual Meeting of the SBPC, July / 2016, the then President of the National Council for Scientific and Technological Development (CNPq) reported that it is necessary to chart a path for the advancement of innovation, since Brazil is a country whose patent deposit is small, has low participation of Brazilian companies, has a scientific production concentrated in few universities and the increase in the number of publications does not reflect in its relevance. In the same month, the Business Mobilization for Innovation gave the then Minister of Science, Technology, Innovations and Communications a document with proposals and legal incentives to drive innovation, treated with the key to economic growth.

In this sense, it is worth inserting in the list of possibilities for expanding the innovative capacity of Brazil, the participation of the common citizen. Remembering that one of the biggest companies in the world - facebook - was not created by any company or scientist, but by university students.

According to Manuel Castells, this contemporary dynamic has characterized the information society, which establishes the formation and use of social networks as a new standard for relationships between individuals in a society and for the exchange of knowledge, ideas and information.

## References

ALBAGLI, Sarita. ALBAGLI, Sarita. Knowledge, social inclusion and local development. Brazilian Research in Information Science and Librarianship, 2006. Available: <http://repositorio.ibict.br/bitstream/123456789/100/1/albagliIS122006.pdf>. Access in: 10 Jun. 2016.

ANDRÉ, Isabel; ABREU Alexandre. Dimensions and spaces of social innovation. *Finisterra*, 81, p. 121-141, 2006.

BOURDIEU, Pierre. "Youth" is just a word. In: QUESTIONS of sociology. Rio de Janeiro: Marco Zero, 1983.

CASTELLS, Manuel. **The Networking Society**. São Paulo: Paz e Terra, 1999. [v. I of The Information Age: economy, society and culture].

CEZAR, Kilma Gonçalves; GOMES, Cristiane Barreto; PERSEGONA, Marcelo Felipe Moreira. Innovation as a socioeconomic dimension of knowledge. RDBCI: Digital Journal of Librarianship and Information Science. Campinas, v. 9, n.1, p.209-224, 2011. Available in: <http://www.sbu.unicamp.br/seer/ojs/index.php/rbci/article/view/500>. Access in: 10 Jun. 2016.

CHIARINI, Túlio; VIEIRA, Karine. Universities as producers of knowledge for the economic development: superior teaching system and the policies of CT&I. *Revista*

Brasileira Economia. v.66, n.1 Rio de Janeiro Jan./Mar. 2012

<http://dx.doi.org/10.1590/S0034-71402012000100006>

COTEC (Foundation for Technological Innovation). Methodological guidelines in technology management and innovation for companies. Volume 1. Module I. "Introduction, Presentation, CD and Module I: business perspective" - TEMAGUIDE. 1999. 60 p

<http://www.bookcrossing.com/journal/8097229/>

DAGNINO, Renato. (Org) Social Technology: Tool to build another Society. Campinas: Unicamp, 2009.

DAGNINO, Renato. (Org) A tecnologia social e seus desafios. In: Tecnologia social. Uma estratégia para o desenvolvimento. Fundação Banco do Brasil, Rio de Janeiro, 2004. .

DAGNINO, Renato. (Org) Social technology in Brazil. In. Social technology: tool to build another society. DAGNINO, Renato Peixoto (Org.) Campinas, SP: IG/UNICAMP, 2009.

DAVENPORT, T.; PRUSAK, L. Business Knowledge: how organizations manage their capital. 12. ed. Rio de Janeiro: Elsevier, 2003.

DAVENPORT, Thomas; PRUSAK, Laurence. Working knowledge: how organizations manage what they know. Boston: Harvard Business School Press, 1998.

DAVILA, T.; EPSTEIN, M. J.; SHELTON, R. The rules of innovation - how to manage, how to measure and how to profit. Porto Alegre: Bookman, 2007.

FREITAS FILHO Fernando Luiz. Innovation Management: theory and practice for implementation. São Paulo: Atlas, 2013.

HAKLAY, M. 2013. Citizen Science and Volunteered Geographic Information: overview and typology of participation, p.105-122. In: Sui, D.; Elwood, S. & Goodchild, M. Crowdsourcing Geographic Knowledge: Volunteered Geographic Information (VGI) in Theory and Practice. Springer. 410p.

LASTRES, Helena & CASSIOLATO, José Eduardo Novas Políticas da Era do Knowledge: the focus on productive and innovative arrangements. Strategic Partnerships - Center for Management and Strategic Studies n. 17. Brasília: CGEE. 2003

LALL, Somik V.; GHOSH, Sudeshna. Learning by dining: informal networks and productivity in Mexican industry : [S. l.] : World Bank Development Research Group, 2002. [http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2002/03/22/00094946\\_0203070403327/Rendered/PDF/multi0page.pdf](http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2002/03/22/00094946_0203070403327/Rendered/PDF/multi0page.pdf). Access in: 15 May 2016.

MORIN, Edgard. The notion of subject. In: SCHNITMAN, D. F. (Org.). New paradigms, culture and subjectivity. Porto Alegre: Artes Médicas, 1996.

MUELLER, Suzana Pinheiro. Popularization of scientific knowledge. *Data Grass Zero - Journal of information science*. v.3. n.2, p.1-11, 2002. Disponível em:  
[http://dici.ibict.br/archive/00000315/01/Populariza%C3%A7%C3%A3o\\_do\\_conhecimento\\_cient%C3%ADfico.pdf](http://dici.ibict.br/archive/00000315/01/Populariza%C3%A7%C3%A3o_do_conhecimento_cient%C3%ADfico.pdf).  
Access in: 15 May 2016.

NICOLSKY, Roberto. Technological innovation: the new paradigm - Science and Technology for the 21st Century: the scientific and technological development of Brazil and Mercosul. São Paulo: Calábria, 1999.

NONAKA, Ikujiro; TAKEUCHI, Hirotaka. Creation of knowledge in the company: how Japanese companies generate the dynamics of innovation. Rio de Janeiro: Campus, 1997. OCDE. *Managing National Innovation Systems*.,1999 Paris.

Ruttan, Vernon. The theory of induced innovation of technical change in the agro of developed countries. In: *Technical change in Latin American agriculture*. San José, Costa Rica, Piñeiro y Trigo, IICA, 1985.

SCHUMPETER, Joseph Alois. The Fundamental Phenomenon of Development. *In: \_\_\_\_\_*. *Theory of Economic Development*. São Paulo: Abril Cultural. p. 43-66. [Col. Os Economistas], 1982.

SCHUMPETER, Joseph Alois. *Capitalism, Socialism and Democracy Chapter VII - The Process of Creative Destruction*. Madrid: Aguilar S.A. de Ediciones, p.121, 1952

SOLOW, Robert. Learning from 'Learning by Doing': Lessons for Economic Growth (Kenneth J. Arrow Lectures) Hardcover, 1997  
[https://books.google.com.br/books?id=VLR09gb05XIC&printsec=frontcover&hl=pt-BR&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](https://books.google.com.br/books?id=VLR09gb05XIC&printsec=frontcover&hl=pt-BR&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false). Access in: 15 May 2016.

SUAIDEN, Emir José e OLIVEIRA, Cecília Leite: *Information Culture: values in the construction of knowledge*. Curitiba: CRV, 2016.

SVEIBY, Karl Erik. *The New Wealth of Organizations*. Rio de Janeiro: Campus, 1998.

VASCONCELOS, Marco Antonio; GARCIA, Manuel Enriquez. *Fundamentals of economics*. São Paulo: Saraiva, 1998.

VIOTTI, Eduardo Baumgratz. Foundations and evolution of ST & I indicators. In: VIOTTI, E. B.; MACEDO, M. M. (Org.). *Indicators of science, technology and innovation in Brazil*. Campinas: Editora da UNICAMP, 2003.

