Debate: the Digital Society and Information Ethics (from Theory to Practice)

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Abstract

This article discusses the role of information in the context of globalization and its impact on some areas of knowledge through the interdisciplinarity of information, in sciences, organizations and people, based on a consolidated theoretical framework. The concern with ethical principles and moral values makes us reflect on the Digital Society and social responsibility for the social and economic well-being of people. This concept is the basis of research that seeks to identify and analyze the responsibility of informational ethics.

It contemplates the epistemological discussion of information, object of study of Information Sciences, in its different approaches, especially cognitive, economic, political and social. The relationships and distinctions between the different concepts of information are emphasized, as well as the contexts, applications/use of the same and its characteristics of transversality and interdisciplinarity. The multiple attributes of Information are analyzed in the light of the theorists and epistemological horizons of various scientific areas.

Keywords: *Globalization, Digital Society, Information Ethics, Interdisciplinarity, Social Responsibility.*

1. INTRODUCTION

Information is traditionally related to printed documents (documentary information) or electronic documents (digital information), when in fact the information dealt with by Information Sciences, Business Sciences and other Sciences, can be either in the dialogue between managers, scientists and people in formal or informal communication, or innovation for an industry, in a patent (trademark), in a photograph or object, in the electronic register, in a virtual library, in a repository (database) or on the internet.

All fields of knowledge are nourished by information, including knowledge itself, but there are few who take it as an object of study and decision-making, but this is increasingly a challenge for future civilizations. Information moves in a multifaceted "territory", it can be information in a certain area, or under a certain approach.

The information depends on the context (scientific, technological, business, artistic, cultural, among others) and corresponds to the applications, so called in the literature, in the transversality, in the quality of the information, to permeate all areas, or specialized information, such as in Medicine, for example, or in a sector, such

as the industrial, or serving the inhabitants of a city, a neighborhood or a participating individual, in some social movement or in personal terms.

This characteristic is distinct from an epistemological character and can be translated, synthetically, as the "dialogue between the sciences" or the mutual appropriation of methodologies, principles, theories, concepts and constructs between two or more disciplines. The focuses, such as the cognitivist, which relates information to knowledge, the administrative or managerial, in which information is related to decision making; the economic, when information is a commodity and acquires added value and is used for action, in a more political and social vision, or in the formation of citizenship.

Second, (Buckland, 1991), information as a thing/object of Information Sciences is not a certainty, insofar as it is "a possible object..." And the term, marked by ambiguity, "is the most extreme case of polysemy in the technical communication of information and documentation." (Ruben, 1993), Belkin (1978) identify at least six approaches in the set of disciplines, each justified and characterized within the "general structure of relations between human beings and the world": the structural (matter-oriented) approach; the knowledge approach; the approach to the message; the approach to meaning (oriented to the characteristic of the message); the effect approach (receptor-oriented); and the process approach.

We cannot avoid the term information, "we have to make clear, at all times, what it means", being the object of study the concepts and definitions in Information Sciences, Business Sciences, among others. The purpose of this article is to discuss theoretically and conceptually the different approaches to information, problematize their multiple attributes, confronting different currents of thought.

2. SCIENTIFIC METHOD

Introduction

This is an exploratory study that seeks to clarify and organize the concepts about areas, subareas and disciplines presented in the literature of Business Sciences, Information Sciences and other Sciences. It is not a proposal of new terms and concepts, but rather an organization that allows the identification of a common denominator between the different concepts already indicated in the literature, in a way that enables their grouping by identity, application/use and relevance/aggregation of value in the context in which the terms are inserted. The data collection is characterized by bibliographic research on terms and concepts related to areas, subareas and disciplines.

It is a descriptive and analytical approach seeking to know and analyze the existing cultural and/or scientific contributions on this subject, based on the literature review. The research was structured based on the systemic approach to understanding the problems of the Global (Digital) Society, seeking in practical, operational or application terms, the solution of "real life" problems of organizations and people.

2.1. Research Theme and Problem

The development of science over the last four centuries has been guided by the objectives of understanding nature and phenomena linked to the real world. To this end, scientific knowledge has been subdivided into thousands of disciplines that have very successfully advanced the sciences. This advance eventually gave rise to classical science, which uses often ineffective methods to deal with some of the most complex contemporary problems. Thus,

new sciences emerged in the post-war period and developed in a different way from classical science, presenting as one of its identifying features the interdisciplinary practice, necessary for the development of its research.

Currently, the terms multi, inter and transdisciplinarity are part of the scientific vocabulary and have their concepts more or less defined (although still far from consolidation), due to the need of the current scientific field, immersed in increasingly complex and diversified projects, and a "[...] an increasingly intense mobilization of knowledge, converging in view of action" (Japiassu, 1976, p.44). The definition itself, formulated at the Georgia Institute's congresses, presents this characteristic: "This field (Information Sciences) is derived from and related to mathematics, logic, linguistics, psychology, computer technology, search operations, graphic art, communication, library science, administration, and other fields" (Shera; Cleveland, 1977, p.265).

However, the many concepts related to interdisciplinarity were only discussed in the area, in a more in-depth way, after the 1960s, in works such as the collection *The study of information: interdisciplinary messages,* edited by (Machlup and Mansfield, 1983), which addressed the interdisciplinary aspect in different disciplines, among them, Information Sciences or, to a lesser extent, in isolated articles, such as, for example, *The Phenomena of interest to Information Science*, by German researchers (Gernot Wersig and U. Nevelling, 1975).

2.2. Goals

Information Sciences is a new science and in the structuring phase. Second, (Smit et al., 2004), state that in addition to the lack of consensus regarding its object and delimitation, the field of Information Sciences is still under construction. As such, due to the lack of the basic and conceptual structure, it still suffers external influences, because the institutional scientific capital weighs more heavily on the few renowned researchers in the area.

This article seeks to contribute to the conceptual understanding of the importance of the meanings and concepts of information, within the scope of Information Sciences, Business Sciences, among others, from a theoretical framework. The objective is to analyze the scientific research developed by the Sciences, which participate in more than one area of knowledge The theoretical discussion of the different concepts and empirical research on the subareas or disciplines constitute the basis for the outline of its structure, presented at the end, bringing together the disciplines according to their nature.

The research focuses on Information, focusing especially on its nature and characteristics, based on the analysis of its praxis in investigations that involve participation with more than one discipline. To this end, the main forms of interaction between the disciplines currently present in scientific practices were studied, as well as it was sought to contextualize the area of Information Sciences, within the scope of contemporary science, through the analysis of its epistemological characteristics.

Discussion questions

1. Does the Digital Society guarantee people's Human Rights?
2. Does the Digital Society aim to defend truth and justice?
3. Does the Digital Society aim for objective (real) truth or subjective (unreal) truth?

2.3. Methodological Approach

As for its nature, the research is qualitative, since it does not claim to quantify events or privilege statistical study. Its focus is to obtain descriptive data, that is, the incidence of topics of interest in fields such as Information Sciences, Business Sciences and other Sciences. With regard to the extremities, the research is exploratory and descriptive, insofar as the technique used is categorized, consensually, as a direct documentation study, which provides for the consultation of sources related to the study in different *media*, printed or electronic.

The complexity and turbulence of the global (digital) society have led to the globalization of information, as essential processes for the development and innovation of sciences and technologies. Information is the source of the energy that drives the "*engines*" of the Digital Society, but in order to use it we need to convert it into a usable form : knowledge, (Murteira, 2001).
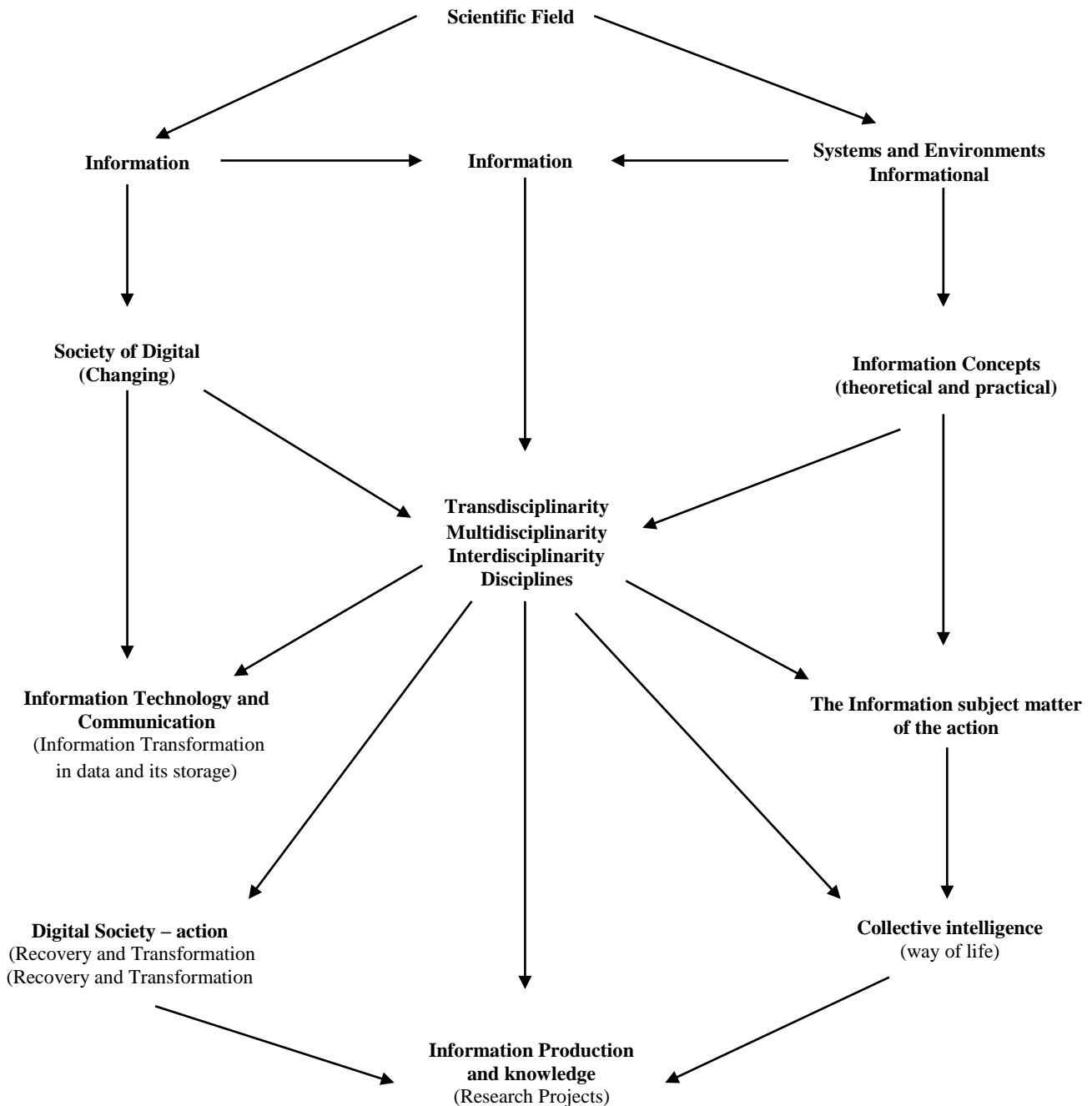
The digital society is a complex society of technological innovation and communication, in which there are the creation of new environments and changes in the dynamics of people, in the way people understand reality, modifying the way, how they relate to the surrounding environment, to other people and how they conceive themselves in the face of their own reality. Both meanings can be understood as a result of the informational revolution, promoted mainly from the attempts to understand human intelligence, via computational bases. As a consequence, the pre-modern notion of information, as the *information* that shapes or shapes the human mind, is gradually being replaced by information, as a "data structure" (Boland, 1987) representing intangible realities, too large to be directly experienced by people's senses.

The research method is likely to cause two or more sciences to interact with each other. This interaction can range from the simple communication of ideas to the mutual integration of concepts, epistemology, terminology, methodology, procedures, data and research organization. This is an exploratory study that seeks to clarify and organize the concepts presented in the literature of Information Sciences, Business Sciences, among others. It is not a proposal of new terms and concepts, but rather an organization that allows the identification of a common denominator among the different concepts already indicated in the literature, in a way that enables their grouping by identity, application/use and pertinence/aggregation of value in the context in which the terms are inserted.

It is necessary to understand, through a theoretical review of the concepts, through historical reference documents; a psychosocial analysis of the concepts of Information, Knowledge, Communication, Learning, Information Economics applied to Information Sciences, Economic Sciences, Business Sciences and Social Sciences; the normative framework in which they are framed; the Internet, as a platform for the exercise of human action and the problems associated with it; digital data, citizen surveillance; the social engineering of Power; online social networks and spaces of trust and conflict.

It is a descriptive and analytical approach seeking to know and analyze the existing cultural and/or scientific contributions on these aspects, based on the review of the existing literature. The research was structured based on the systemic approach, for the understanding of the problems of Information, Knowledge, Communication and Learning, in this Complex and Turbulent Society. We represent this conceptual network as follows:

Figure 1 – Globalization of Information (Digital Society) and Information Ethics

Scientific Field

Information → **Information** ← **Systems and Environments Informational**

Society of Digital (Changing)

Information Concepts (theoretical and practical)

Transdisciplinarity Multidisciplinarity Interdisciplinarity Disciplines

Information Technology and Communication
(Information Transformation in data and its storage)

The Information subject matter of the action

Digital Society – action
(Recovery and Transformation
(Recovery and Transformation

Collective intelligence
(way of life)

Information Production and knowledge
(Research Projects)

Source: authors' elaboration

The model of approach for intervention in information actions, in the academic space, with the purpose of producing and sharing information and knowledge, among the participants, is presented, in addition to promoting the development of skills of search, retrieval, organization, appropriation, production and dissemination of relevant information for scientific researchers, managers and other interest groups, in society.

3. THEORETICAL-METHODOLOGICAL FRAMEWORK OF THE RESEARCH

3.1. Introduction

Philosophy is the basis of all sciences (however, doing philosophy and doing science are distinct acts). The study of philosophy is complementary to all other areas of knowledge. The difficulty with the concepts, ontology and epistemology, is due to the fact that they are abstract and confusing, because they are related to each other, especially in the case of scientific research. Ontology is the study/essence of being. It is possible to understand these concepts.

- What is reality? What defines reality? Does reality exist? Is it attainable?

- What is epistemology and ontology?
- What is speech?

These concepts are important to guide and lead the scientific path. And they are related to objectives, methods, data analysis, among others. If the ontological assumptions (regarding the essence of the object of study) of the researcher are directed to the following view: "Reality refers to facts that are waiting to be discovered."

So, it is possible that the researcher/scientist will feel more comfortable doing an experiment to investigate facts and perhaps prove them, if you can say so. It's a view that many believe is more "objective" in science. We would say: positivist. In order not to be so critical, we would perhaps say that it is a research model that is very present in the exact sciences, although in the human sciences there is an influence of this model. It is a structuralist, formalist, modern ontological view (as opposed to what Giddens calls late modernity).

However, if the researcher's ontological positioning/view is: "Reality is... ephemeral, liquid and can only be thought of from the point of reference of someone/something."

So, the ontological view of the researcher/scientist is more functionalist, post-structuralist, (as opposed to the concept of modernity) and perhaps his path, towards doing science, is in relation to an object of study, whose meaning is constructed and not ready-made, static and given. On the other hand, due to the challenges faced in the research, in the definition of the object of study, epistemology is for the necessary means to understand the essence of being, ontology. Epistemology means the study of knowledge. It can be understood by asking the following questions:

- What is reality? (in ontology)
- How can I know reality and interpret it? (in epistemology)
- If reality exists, how can I know it? (in epistemology)

Both the ontological and epistemological bases of a research must be in tune; they will affect, in some way, the results that will be found. If the researcher's epistemological view is: "My senses help me to understand the objective world". This is a vision that will lead you to a more empiricist path, which will make you use research-ready data, perhaps work with proofs...

However, if the scientist shares this epistemological view: "Can I trust my senses?" This means that knowledge is subjective. The scientist is a constructivist, which can direct him to Critical Discourse Analysis (CDA), to the study of issues related to Social Interactions and the construction of knowledge. In any case, in this view, it is only possible to approach an aspect of reality about a theme/research and the theory(s)/author(s) used. The research, in this case, is a slice of the reality that the researcher has done.

Both these ontological and epistemological assumptions are relative to quantitative research (more traditional, more concerned with reality, objectivity and impersonality in the text) and to qualitative research (more critical, discursive, whose vision of "reality" depends on the referential and on a process of construction, which understands reality as ephemeral – because everything is constantly changing, subjective, researcher-centred – who can write in the first person to assume his or her voice as a researcher, as well as the angle – or angles, under which the research will be observed).

Considering philosophical practice as the art of interpreting reality from the formulation of conceptual schemes about the human being, nature and society, will Philosophy be able to face the problems that arise from the new organizational dynamics of society today? We understand that Philosophy alone, without interdisciplinary tools of analysis, does not seem capable of facing, perhaps even formulating, the problems raised by Information and Communication Technologies (ICTs).

3.2. FUNDAMENTAL CONCEPTS
What is Information?

The answer to the question what is information is not unique, (Capurro; Hjørland, 2003). There are many possible answers, depending on who responds. In addition, associated with the question What is information? there are others, such as: What is the meaning of informational content? What is Information Sciences? What is the information for? What is Information Sciences used for? (Capurro, 1991). Thus, care should be taken to ensure that the discussion of the concept of information, together with the identification of the need for interpretation of information – or informational content – does not lead to a confusion between what information is, what is the meaning of information and what is the role of Information Sciences (IC)?

Answering, or at least analyzing, the aforementioned questions is a recurring theme in Capurro's work, which states: "The question: what is information for?' leads to the question: what are ICs for?', since IC, conceived as a hermeneutic-rhetorical discipline, studies the contextual pragmatic dimensions, in which knowledge is shared positively, as information and negatively, such as misinformation, particularly through technological forms of communication. These are not only instruments, but "ways of being" (Winograd; Flores 1986 in: Capurro 1991).

Capurro cites a classic definition of IC as a professional and research area, made by (Borko, 1968) at a time when the *American Documentation Institute* had recently changed its name to the *American Society for Information Science* (ASIS) (now called the *American Society for Information Science and Technology - ASIS&T).* which is: "A classic definition of IC says that this science has as its object the production, selection, organization, interpretation, storage, retrieval, dissemination, transformation and use of information. (Borko, 1968, p. 3 in: Griffith, 1980 in: Capurro, 2003).

Despite being a widely cited and accepted definition in the field, there is the problem that there is no consensus on the meaning of the term information. The author cites a paper written in the 1980s in which 134 (one hundred and thirty-four) notions of information were identified, only considering the uses in IC (Schrader, 1986, p. 179 in: Capurro, 1991, p. 2). Subsequently, Capurro again cites a work by Schrader, this time mentioning 700 definitions found in the period between 1900 and 1981 (Schrader, 1983, p. 99 in: Capurro; Hjørland, 2003, p. 349).

In short, the term information does not respect the limits of the areas of knowledge and does not find consensus on what its definition should be, which varies from one area of knowledge to another and in relation to different contexts. As a philosopher, Capurro uses to identify the concept of information, the study of the historical roots of the term, going back to its uses in ancient Greece. This appears in at least four of the author's works, published over a period of almost three decades (1978; 1991; 2003; Capurro; Hjørland, 2003).

(Capurro, 1978), made an investigation of the etymological roots, of the term, information and states that he rediscovered that the key theories of Greek ontology and epistemology, based on the concepts of *typos, idéa and morphé*, were at the origin of the Latin term *informatio*. Such connotations were retained through the Middle Ages, but disappeared when scholastic ontology was replaced by modern science. Since the sixteenth century, the term information has been found in the everyday languages of French, English, Spanish and Italian, with the meaning we use today: 'to instruct, to provide knowledge', and the ontological meaning of 'to give shape to something' has become more and more obsolete.

A more recent review of the literature on the term information, Capurro and Hjørland recognize problems in the historical approach to the definition of the term information, more specifically the following: the etymological study of a word can lead to anecdotal conclusions, which only touch on the meaning of the word; The use of the term information became more popular from the 1950s onwards, which would minimize the importance of earlier uses; Based on a quote from Charles Sanders Peirce, the authors state that the meaning of a term is defined not only by the past, but also by the future (Peirce in: Capurro; Hjørland, 2003, p. 343; 344; 346).

Despite their own reservations, the authors justify the etymological studies by implicitly highlighting the importance of early philosophical texts as fundamental to modern culture: "Examining the history of the uses of a word reveals some of the primitive forms or contexts that underpin higher-level scientific practices. This lowers the expectations we have of higher-level univocal concepts, and helps us better manage vagueness and ambiguity. Questioning modern terminology, looking more closely at the relationships between signs, meaning, references, and paying attention to the transformations of historical contexts, helps us to understand how the present and future uses of words are intertwined. [...] Such a historical-critical revision makes possible a better understanding of higher-level information concepts in the Hellenistic period, as well as in the Middle Ages and modern times." (Capurro; Hjørland, 2003, p. 351).

Capurro and Hjørland present different concepts associated with the term information, highlighting the following aspects: roots of the term, in Latin and Greek; modern and postmodern uses; the concept of information in the natural sciences, humanities and social sciences; information in the IC (2003). The fundamental separation between the various concepts may come from the distinction between information seen as a thing or object (for example, in the case of bits and Shannon's mathematical theory of communication) and information understood as a subjective concept, whose meaning, or informational content, depends on interpretation and context (Capurro; Hjørland, 2003, p. 345; 396-397). In this case, the context involves the area of knowledge, interests, education, and capacities of the subjects involved.

The very relationship between IC and communication, as areas of knowledge, is a topic of interest to other researchers (Shannon, Weaver, 1949; Le Coadic, 1997, p. 10; Saracevic, 1996, p. 52). The importance of the post-World War II period, when IC emerged (2003, p. 343), in relation to other disciplines, such as cybernetics and modern computing, is also highlighted, since it has an interdisciplinary character that can serve both IC and other social sciences and humanities, as long as the peculiarities of the *release mechanism* are respected.

From a humanist perspective, Capurro and Hjørland comment that such a definition may seem, at first glance, reductionist, mechanistic and unethical. However, they consider that this is not the case, but rather that Karpatshof's definition allows us to take the focus away from the question: What is information? and transfer it to the analysis of release mechanisms. In the case of the social sciences and ICs, the mechanisms of liberation are people interacting through signals, and these signals are associated with messages and information. Thus, the study of information would not dispense with the study of semantic meaning for human beings, and of subjectivity, since such characteristics are implicit in the mechanisms of liberation.

From Karpatschof's definition of information, it is also possible to identify elements of the (*angelic*) message theory (Capurro, 2000; 2003). Other mechanisms of liberation would be technological information systems and living organisms in general. In summary, it is possible to state that for Capurro and Hjørland, before the definition of information, the role and nature of theories in IC should be clarified and substantiated, giving greater attention to concepts such as signs, texts and knowledge, also considering the use of the term information in the areas of information retrieval research, information systems and information services. for example, without forgetting that information is that which is informative for a given person, which is conditioned by the community to which the person belongs, his or her individual capacities and interpretative needs (Capurro; Hjørland, 2003, p. 346; 350). In summary, the author does not create or choose an assertive definition of information, but seeks to discuss aspects that should be considered in IC studies, such as the content of information and its social impact. The alternative way he sought to elaborate such a discussion was through message theory.

What is the Message?
Over time, Capurro experiences a passage from hermeneutics to *angelics* (Matheus; Capurro, 2005) – the message theory (Capurro, 2000; 2003B; 2003). With this passage, his argument shifts from the term information to the term message. Capurro's *angeletics* has similarities and differences with Régis Debray's (1999) mediology, as the author himself comments. According to his understanding, there is also an intimate relationship between the message of *angeletics* (sign) and the interpretation of information (sign). Capurro himself compares information and message, and states that: "Message and information are correlated concepts, but not identical: - a message dependent on the sender, that is, it is based on a heteronomic and asymmetric structure. This is not the case with information: we receive a message, but we request a piece of information, a message supposedly brings something new and/or relevant to the receiver. This is also the case with information, - a message can be encoded and transmitted through different media or messengers. This is also the case with information, – the message is a speech that triggers selection by the receiver, through a mechanism of release or interpretation." (Capurro, 2003c, p. 3).

Capurro thus points out that the message needs to be interpreted, without commenting on the information. However, the information is remembered indirectly through the citation of the mechanisms of liberation, which lead to the definition of information (Karpatschof, 2000, p. 131-132 in: Capurro; Hjørland, 2003, p. 375). The association between the mechanisms of liberation and interpretation, as a selection of semantic meaning, refers again to the proposition of hermeneutics, as an epistemological basis for IC (Capurro, 1991). In other words, unless the registered representation is considered to be information. According to the author, this always needs a subjective interpretation. As for the first topic, if information is requested, it should be sent as a message. Reception and interpretation, as information, is later. Of course, there are differences between a voluntary request and an involuntary reception, but the author's understanding is that the latter is not an essential difference between message and information. The essential relationship may be that, in any process that involves the communication of information, there is always a message (sign with meaning) that is emitted, whether it has been requested or not, but different possibilities for such a message to be received and interpreted, as information (sign).

Capurro himself mentions this issue when he says, citing (Luhmann, 1996 in: Capurro, 2003C, p. 3) that: "[...] we differentiate between message ('*Mitteilung*'), i.e., the action of offering something (potentially) meaningful to the social system ('*Sinnangebot*') and information ('*Information*'), i.e., the process of selecting a meaning from different possibilities offered by the message, and also understanding ('*Verstehen*'), i.e., the integration of the selected meaning with the system, such as the three dimensions of communication in a system social." (Capurro, 2003C, p. 3) mentions that the nature of a message can be imperative, indicative or optional. Regarding the conditions of the process of emission-transmission-reception and the (in)determinism of the *angelic* process of message exchange, he states, indicating some principles, which could be called, according to the author's understanding, ethical principles of the *angelic process*, that: "[...] Neither the sender, nor the messenger, nor the receiver have any kind of certainty that their actions will meet the ideal situation, which is configured as: - a sender addresses a receiver, sending him a message that is new and relevant to him, i.e. he follows the principle of respect, - a messenger brings the message undistorted to the receiver, that is, it follows the principle of trust, - a receiver reserves the right of judgment, based on the principle of interpretation, as to whether the message is true or not, that is, it follows the principle of reservation." (Capurro, 2003C, p. 4) indicates that *angelics* allows us to study the freedom to name the dimensions of the message, which are the following: form; content; objective; producer(s); receiver(s). Specifically on the objective dimension of the message, it sustains the theory of (Vilem Flusser, 1996 in: Capurro, 2003C, p. 4), which supposes two possible objectives in the communication process: dialogical objective – in order to generate new information; discursive objective – in order to distribute information.

Capurro calls the society of the twentieth century. XXI, as the society of the message. He does not make an explicit opposition to the knowledge society or the information society, but such an analogy is one of the consequences. According to Capurro (Matheus; Capurro, 2005), the message society is characterized by new decentralized means of communication, especially global digital networks that allow many-to-many interaction (e.g. Internet), as opposed to the previously available centralized and regulated mass media, and also one-to-one communication (e.g. telephone). Such networks have political, social and economic impacts on the message society. Such an analysis brings society closer to the message, to the network society, (Manuel Castells, 2005).

Regarding the society of the message, (Capurro, 2003, p. 4) states that the following "social aspects of the *angelic process" should be considered*: "origin, purpose, and content of messages, power structures, techniques and means of dissemination, history of messages and messengers, codification and interpretation of messages, as well as psychological, political, economic, aesthetic, ethical, and religious aspects". In relation to messages in today's society, Capurro refers to the media nihilism (Sloterdijk, 1997 in: Capurro, 2000, p. 2) of Peter Sloterdijk and also to the words of Marshall McLuhan, who say that the medium is the message (Capurro, 2000, p. 2). An interpretation from Capurro, in relation to these comments, it is possible to say that much is said, without saying anything, or even that much is transmitted, but little is received. These questions have a strong impact on the analysis of *angelics* in society, on the role of the mass *media* and on the eventual transformation of this role in function of the Internet.

Capurro also suggests that *angeletics* could be applied to non-human biological processes. It suggests the existence of a postal paradigm, according to which biological structures of a lower level, in terms of biological evolution and DNA, receive the message, but do not have the same degree of freedom, or capacity for selection, that the human being, even a baby, has in terms of his epistemological and pragmatic capacity, paraphrasing Heidegger's existential hermeneutics (Capurro, 2003C, p. 5-8). In this case, considering the double meaning for the Latin term *informatio*, such as shaping matter and shaping the mind, the simplest biological structures approximate the former and the human being the latter. When talking about languages and codes, Capurro (2003C, p. 4) states that "[...] In order to select or interpret a message, the receiver must have some common kind of pre-understanding of the sender of the message, e.g. a common format or a (linguistic) code." (Capurro, 2003C, p. 2; 3).

Interestingly, this question is reminiscent of Shannon and Weaver's mathematical theory of communication, especially the chapter written for the 1949 version, in which Weaver points out that if the communication system between sender and receiver has only two symbols, such as '0' or '1', for example, it can be agreed that '0' means the content of the King James Version of the Bible. while '1' just means YES. Thus, when receiving the signal 0, the receiver will consider the content of the bible. Such elements may offer support for a practice-oriented theory of IC research, going beyond the philosophical and epistemological analysis of the area. At this point a question arises: Why would Capurro have chosen to elaborate a theory of the message (*angelic*) and not a theory of information? One possible answer is the difficulty of defining the concept associated with the term information in a rigorous way, especially considering the difficulties pointed out by the Capurro Trilemma (Capurro; Fleissner; Hofkirchner, 1999).

Either way, the naming change has at least two interesting implications. The first is the possible analogy of *angelics,* as a theory of the message, with the mathematical theory of communication (Shannon, 1948). The biggest difference between the theories is that *angeletics* seeks to deal broadly with all problems involving human messages, while the mathematical theory of communication would exclude the semantic and pragmatic aspects of message analysis. In addition, the mathematical theory of communication mentions the transmission of information, which,

(Capurro, 2003B, p. 2) ignores the fact that all information, from the perspective of the human being, needs a process of interpretation. According to this conception, only messages could be transmitted, but not information.

However, the semantic and pragmatic aspects are present in the chapter written by Weaver (Shannon; Weaver, 1949), although this approach has not been sufficiently developed to date. The second implication is to question whether the change from the term information to the term message can have the effect of distancing the interest of IC researchers from Capurro's approach, even if the problem and the interests dealt with are the same or similar. In other words, what attracts the CI researcher are the problems related to information, the historical origins of the area, information and communication technologies, the economic causes and consequences of the flow of information in contemporary society, or is it just the word information? Both implications, although speculative, bring *angeletics* closer to both IC and other sciences, as indicated by the grouping of several disciplines that have information as their object of study. (Machlup; Mansfield, 1983).

Finally, the approach offered by *angeletics* is more independent of the direct recourse to philosophical support, which does not occur in the case of the hermeneutic approach, without, however, abandoning it entirely. This makes *angeletics* simpler and easier to understand in relation to an applied area such as IC, in addition to providing a direct analysis of issues pertinent to society, such as economic implications linked to the distribution of information, informational exclusion and the Internet. In other words, *angeletics* would approach a theory applicable to IC research, while hermeneutics would promote a philosophical approach to the field.

What is Knowledge?
Regarding the nature of knowledge, the theories of knowledge stand out, from which it is analyzed through the relationship between the cognitive and the world. For (Dretske, 1981, p. 56), the information processors of the sensory systems of organisms are channels for the reception of information about the external world.

The naturalistic stance in Philosophy consists in disregarding the supernatural in the explanation of nature and mind, conceiving reality to consist only of natural elements and laws, which are explained through scientific methods. The term "natural" would encompass other terms such as "physical", "biological" or "informational" that express a rejection of transcendent assumptions in the foundation of a priori knowledge (Moraes, 2014), the acquisition of knowledge. (Adams, 2010), in turn, argues that knowledge acquires its properties from its informational basis. In such a relationship, knowledge is about the world, about truth, constituting the bridge between the cognitive agent and the world.

In addition to the problems about the ontological and epistemological natures of information, and the nature of knowledge, the following questions are part of the IF research agenda: "what is meaning?", "what is the relationship between mental states and informational states?", "could reality be reduced to informational terms?", "can information be the basis of an ethical theory?". among others. After presenting the topics (problems) and theories (hypotheses and explanations) of IF, we highlight two methods specific to this area of investigation: the "synthetic method of analysis" and the "levels of abstraction".

Such methods come from the influence of the works of (Turing, 1950) in Philosophy (marked, in particular, by the informational turn). The "synthetic method of analysis" is the result of the hypothesis of (Turing, 1950), according to which the study of the mind is appropriate when carried out through the use of mechanical functions that could be manipulated by digital computers (Gonzalez, 2005; Floridi, 2012). By means of such functions it would be possible to construct mechanical models of the structure and dynamics of intelligent thought. The understanding that underlies this conception is that the ability to manipulate information in a mechanical way constitutes thinking.

This understanding enabled the development of mechanical models of the mind, which initially generated two strands in Cognitive Science (Teixeira, 1998): strong Artificial Intelligence, which defends the thesis according to which mechanical models of the mind, when successful, not only simulate/emulate mental activities, but explain and instantiate such activities; and weak Artificial Intelligence, according to which the model is only a limited explanatory tool of intelligent mental activity. The common point of these notions is that they both accept the thesis that to simulate is to explain, in order to attribute to mechanical models, the value of theories. This is an example of an approach to another question specific to IF: what is the relationship between information and intelligent thinking?

The "levels of abstraction", in turn, derive from the algorithmic approach of (Turing, 1950), which is summarized by (Floridi, 2013b, p. 210) as follows: we have seen that questions and answers never occur in a vacuum, but are always embedded in a network of other questions and answers. Likewise, they cannot occur in any context, without any purpose, or independent of any perspective. According to this perspective, a philosophical question is analyzed considering its context and purpose, which delimit the field of possibilities for adequate answers.

(Adams & Moraes, 2014), considering the topics, theories and methods of IF, propose the "argument of analogy" to analyze the autonomous aspect of IF. These authors point out that, like the Philosophy of Mathematics and the Philosophy of Biology, IF has characteristics such as:

- Proximity to the scientific approach, epistemological and metaphysical problems, as well as the presence of problems of its own not previously dealt with in other areas of Philosophy. Given that IF shares characteristics present in areas already recognized by philosophical society as legitimate, it would be counterintuitive not to accept IF as an autonomous area of research in philosophy.

As indicated, the development of information studies in the philosophical-scientific sphere contributed to the constitution of IF in the academic sphere. This is illustrated by the constitution of FI, as an autonomous and interdisciplinary area of Philosophy: interdisciplinary due to its relationship with Computing, Sociology, Engineering, among other areas, generating methods and theories to deal with its problems; and autonomous, due to its own (and new) problems. With the academic development of IF, the influence in the social sphere is also highlighted.

The understanding of the historical evolution of scientific knowledge based on the analysis of research and researchers is an important theme for the history of science and for the philosophy of science. As it is an interdisciplinary area, the history of Information Sciences (IC) has been and is influenced by the history of other areas of scientific knowledge.

(Capurro, 2003), describes the historical roots as: "CI has two roots: one is classical librarianship or, in more general terms, the study of problems related to the transmission of messages, the other being digital computing". The author also highlights the possibility of tracing a line of evolution from studies of specialized libraries to documentation and, finally, to IC, both in the United States and in Europe (Williams, 1998; Rayward, 1998 in: Capurro; Hjørland, 2003, p. 378).

The change in nomenclature would have occurred under the influence of new technologies, especially computing and cybernetics, and also due to the mathematical theory of communication (Shannon, 1948; Shannon, Weaver, 1949), now known as information theory, and the cognitive paradigm of the brain as an information processor. (Capurro; Hjørland, 2003, p. 379; Capurro, 1991).

As the historical roots of IC did not limit its scope to studies developed internally in the area, the change in nomenclature has been accompanied by a gradual expansion of the topics of interest, as confirmed by Capurro's analysis of the epistemological paradigms of IC, that is, physical, cognitive and social. (Capurro, 2003).

Information and/or Knowledge?
Although the terms information and knowledge are used very often, they are not the same thing. Information is not the same thing as data, although the two words are often confused, so it is understandable that the subtle distinction between these concepts is essential. The data do not carry sense or meaning of facts, images or sounds, since they lack relational elements indispensable to the establishment of a complete meaning, lacking an internal relational structure for a cognitive purpose. This structure is one of the attributes of information. Data is transformed into information when its creator adds meaning to it (Davenport and Prusak, 1998).

Wiliam G. Zikmund1 (2000, p.19) defines knowledge as "the mixture of information, experience and understanding that provides a framework that can be applied in the evaluation of new information or new situations". Information "feeds" knowledge. Knowledge can thus be defined as a person's ability to relate complex information structures to a new context. New contexts imply change – action and dynamism. Knowledge can be shared, if the possessor wants to share it. When a person internalizes information to the point of being able to use it, we call it knowledge (Zikmund, 2000). This is a fluid mix of structured experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information.

In organizations, it is found not only in documents and reports, but also in organizational routines, processes, practices, and standards. Knowledge originates from and is applied in the minds of knowers (Davenport and Prusak, 1998, William Zikmund, 2000). Knowledge is information as valid and accepted, integrating data, acts, information and sometimes hypotheses. Knowledge requires someone to filter, combine, and interpret the information. Information can be considered as a "substance" that can be acquired, stored and possessed by a person or a group and transmitted from person to person or from group to group. Information has a certain stability and is perhaps better seen as existing at the societal level (Davenport and Prusak, 1998).

Although we can store it using various physical supports, the information itself is not physical, but abstract and not purely mental. Knowledge is stored in people's memories, but information is out there in the world. Whatever it is, there is somewhere between the physical world around people and the mental world of human thoughts. Knowledge = Internalized information + ability to use it in new situations. Knowledge is fundamentally and intrinsically found within people. These are much more complex and unpredictable at the individual level than an entire society, so it is not surprising that knowledge is much more difficult to obtain than information.

Knowledge exists primarily within people, it is an integral part of complexity and 1 Zikmund, William G., (2000), Bussiness Research Methods sixth Edition, Dryden Press Harcourt College Publishers4 human unpredictability (Davenport and Prusak, 1998). Knowledge has a fundamental duality: it is something that can be stored (at least sometimes we intend to do so) and something that flows (something that communicates from person to person). It is possibly the duality of knowledge (a thing that flows and a process of storage) that makes it difficult to process and manage. According to Dahlberg (2006), knowledge is organized into units of knowledge (concepts) according to their characteristics (objects/subjects/subjects). The organization of knowledge is related to a process of conceptual analysis of a domain of knowledge and from there it is structured / architected generating a representation of knowledge about such domain that will be used for the organization of information about that domain of knowledge.

What is the Systemic Approach?
Von Bertalanffy (1968), in *the General Theory of Systems*, says that the word system would figure in one of the first places, if one were to make a list of terms in vogue; the idea of system permeates all fields of science, having penetrated popular thought, the mass media, even a common jargon. The notion of system encompasses a number of approaches, such as systems philosophy (focusing on system ethics, history, ontology, epistemology, and methodology), systems engineering (artificial systems such as robots, electronic data processing, etc.), systems analysis (development and planning of system models, including mathematical ones), and empirical research on systems (encompassing the discovery of laws, adequacy and simulation studies of systems).
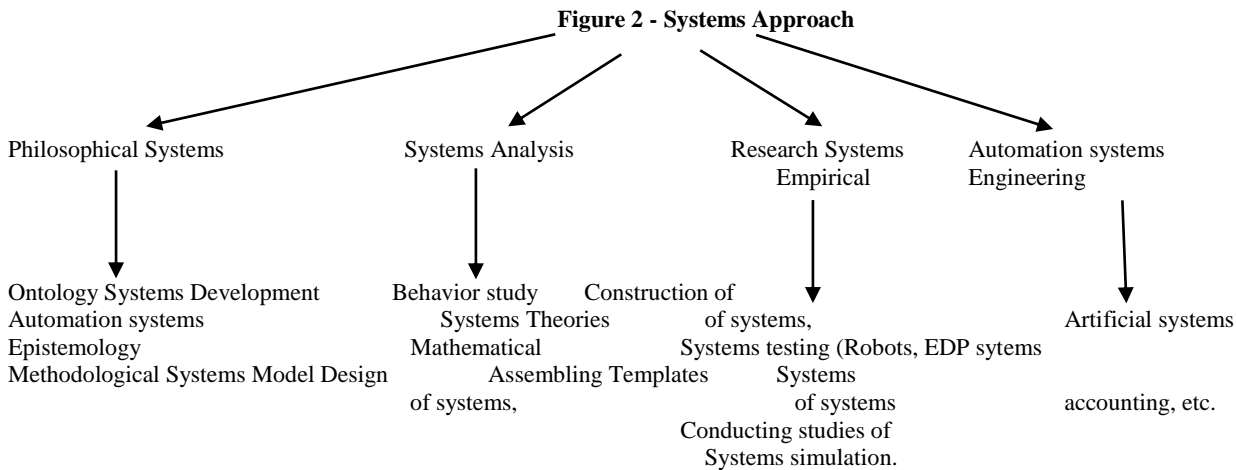
According to (Mattessich, 1982), the strong philosophical flavor presented by *General Systems Theory* stems from its incorporating many "aspects of holistic paradigms expressed in the philosophies of Lao-Tse, Heraclitus, Leibniz, Vico, Hegel, Marx, Whitehead, Driesch and others." The philosophical vision, which has guided the systemic approach since its conception, emerged in the late 1960s and early 1970s with the work of (Churchman, 1968, Ackoff, 1971, Lazlo, 1970, Sutherland and Emery, 1969). These authors typify the ethical and introductory phase of systems philosophy.

Churchman's (1968) works have a historical, ethical focus, and are oriented towards management and the social sciences. (Ackoff and Emery, 1972), stand out for their conceptual and exploratory contributions. Lazlo contributes to the philosophy of systems within the line of thought of (Von Bertalanffy, 1968), and extends the line of (Lazlo, 1970), applying it to the social sciences. Within the philosophical view, the end of the 70s is marked by a growing pragmatism, characterized by epistemological, methodological and ontological foci applied to administration,

decision-making methods, social and applied sciences in general. Three names exemplify this phase: (Rescher, 1979), focused on epistemological applications; Bunge, for ontology, and Mattessich for methodology.

The systems analysis approach, he continues (Mattessich, 1982), although much criticized for its restrictive aspects of model construction, emerged from visions of cybernetics (Wiener, 1961) and communication theory (Shannon and Weaver, 1948-1949). (Mesarovic, 1974), laid the foundations of a General Mathematical Systems Theory and, together with Takahara, 1975, presented the mathematical foundations for a general systems theory. Still in the mathematical line, theories of control, linear and nonlinear systems, and the theory of automata (developed from the works of (Alan Turing, 1936) were developed. Empirical research in systems led Herbert Simon to devise a series of heuristic researches related to games and simulation.

Second, *The International Encyclopedie of Social Sciences*, (1965, v. 15, pp. 452-495), classifies systems analysis into the following categories: General Systems Theory, Social Systems, Political Systems, International Systems, and Psychological Systems. We present our proposal for the classification of the disciplines:

Figure 2 - Systems Approach

Philosophical Systems	Systems Analysis	Research Systems Empirical	Automation systems Engineering
Ontology Systems Development Automation systems Epistemology Methodological Systems Model Design	Behavior study Construction of Systems Theories of systems, Mathematical Systems testing Assembling Templates Systems of systems, Conducting studies of Systems simulation.	(Robots, EDP sytems of systems	Artificial systems accounting, etc.

Source: Adapted from Richard Mattessich (1982), Distinguished Arthur Andersen & Co. Professor, Faculty of Commerce and Business Administration, University of British Columbia, Vancouver, B.C., Canada, in: V6T 1yjournal of the American Society For Information Science

In short, the systems approach is, in the words of (Churchman, 1968), a perception and an illusion; a continual revision of the world, of the total system and its components; the essence of the systems approach is on the one hand confusion and on the other enlightenment – both inseparable aspects of human life. Based on this *perception-illusion continuum* (Churchman, 1968), he summarizes the systemic approach in the following aspects:

- The systemic approach begins when, for the first time, one sees the world through the eyes of another;
- The systemic approach continually realizes that the whole view of the world is terribly restricted. In other words, each view of the world sees only one part of a larger system;
- There is no one who is an expert in the systemic approach, that is, the problem with the systemic approach is to capture what everyone knows, something beyond the reach of any specialist;
- The systemic approach is not a bad idea at all.

One of the possible definitions of system, according to (Von Bertalanffy, 1968), states that "a system can be defined as a set of elements in the interrelation between themselves and the environment". There is broad agreement that a system is a model of a general nature, that is, a conceptual analogue of some fairly universal traits of observed entities. (Angyal, 1939), when dealing with the structure of the whole, points to the concept of system as being the appropriate entity for the treatment of the whole, although he recognizes the difficulties of perceiving and describing holistic connections through relationships. (Churchman, 1968), says that although the word system has been defined in various ways, there is widespread agreement that a system is "a set of parts coordinated to achieve a set of objectives".

According to (Amaral, 1977), "... system is the whole set of two or more interacting elements. By imagining the universe made up of interacting galaxies, we get a view of the largest perceptible system. By imagining man with all the molecules that constitute and interact with him, we have another view of the system. Finally, by imagining the atom and the particles that compose and interact with it, we have a vision of a system that, in relation to man, is microscopic. When you visualize everything from the Universe to an atomic particle, you have what is called a systemic view."

In short, systems can be conceptualized as a set of interrelated parts interacting to achieve a certain goal(s). The systems view approaches the world as a set of systems and subsystems with implications of containing/being contained. One of the most commonly used classifications in information science concerns the division into natural systems – those existing in nature – and artificial or social systems, those created by man to improve natural systems.

Among the various possible classifications for systems, (Davis, 1974) dichotomizes into abstract or physical, deterministic or probabilist, closed or open. An abstract system is an orderly arrangement of interdependent ideas or constructs. A physical system is a set of elements that operate together to achieve a goal,

Physical systems are tangible, material. A deterministic system is one that works in a predictable way, i.e., the state of the system at a given point, and the description of its operation ideally lead to the prediction of the next state, without errors. A probabilistic system is one that operates within probable conditions of behavior, or rather, there is a margin of error associated with the prediction. Closed system is self-contained. It does not exchange material, information or energy with the environment. Such closed systems will exhaust themselves or become disordered. This movement into disorder is called an increase in entropy. An open system is one that exchanges information, material and energy with the environment, that is, an open system is one that has an environment, which are other systems with which it relates, exchanges and communicates. Open systems tend to adapt to changes in their environments in order to ensure their own existence.

(Wilkerson and Paul, 1985), searched the literature on what would characterize a system, and what properties or characteristics the systems should have. (Katz and Kahn, 1977), point out some common characteristics of the so-called open systems:

- **Importing energy** – open systems need to import some kind of energy from the environment. As such, social organizations also need to draw energy, either from other organizations, people, or the material/physical environment that surrounds them – no social structure is self-sufficient and autonomous.
- **Transformation** – To perform some kind of work, open systems transform the energy they have at their disposal. Organizations create new products, produce raw materials, train people, or provide services – all of these activities entail reorganization of inputs.
- **Product** – the product of open systems is exported to the environment, either as mint/artifact.
- **Systems such as cycles of events** – the activities generated by the exchange of energy have a cyclical pattern: what is exported to the environment provides energy for the repetition of the cycle of activities.
- **Negative entropy** – according to several authors, in order to try to oppose the entropic process (a necessary condition for survival), systems must acquire negative entropy. Entropy is a universal law of nature that states that all forms of organization tend toward disorder or death. The open system, by importing more energy from the environment than it needs, can, through this mechanism, acquire negative entropy. In open systems, there is a general tendency to maximise the ratio of imported energy to exported energy, aiming at survival, even in times of crisis. The entropy process exists in all biological systems and in closed systems, although social systems are not subject to the rigors of the same physical constants as biological systems, and can oppose the entropic process almost indefinitely. However, they state: "... The number of organisations that cease to exist every year is enormous.
- **Information input**, negative feedback and coding process – In addition to the energy inputs that are transformed or altered to carry out a job, the systems also include information inputs that provide the structure with signals about the environment and its own functioning. Negative feedback is the simplest type of information input found in all systems. Such feedback helps the system to correct deviations in direction. The mechanisms of a machine, for example, send information about the effects of its operations to some central mechanism or subsystem which, in turn, acts on this information to keep the system in the desired direction. The thermostat is an example of a regulatory mechanism based on negative feedback.
- **Steady state and dynamic homeostasis** – The mechanism of energy importation, in an attempt to oppose entropy, entails an energy exchange, characterizing a stable state in open systems. Such a state does not mean immobility, nor true equilibrium. There is a continuous flow of energy from the external environment to the system and a continuous export of energy from the system to the environment, thus establishing a proportion of exchanges and relations that remains equal, i.e., constant and balanced. Although the tendency toward stability in its simplest form is homeostatical, such as the maintenance of the constant temperature of the body, the basic principle is the preservation of the character of the system. (Miller, 1955), argues that the rate of growth of a system, within certain limits, is exponential, if that system exists in an environment that makes unlimited quantities of energy available for input. Thus, the steady state is that of homeostasis over time. At more complex levels, it becomes a state of preservation of the character of the system, which grows and expands by importing more energy than necessary. Open or living systems have a dynamic of growth through which they push their basic nature to the limit. They react to changes or anticipate them through growth by assimilating new energy inputs.
- **Differentiation** – open systems tend towards differentiation and elaboration. Fuzzy global standards are replaced by more specialized functions.
- **Equifinality** – (Von Bertallanffy, 1968), suggested this principle as characteristic of open systems and established that "a system can reach the same end state from different initial conditions and by different paths". It should be noted that the level of equifinality may be reduced as open systems develop regulatory mechanisms for the control of their operations.

In a broad, philosophical sense, parts are elements, organs, phenomena and processes whose interaction constitutes, precisely, the whole and gives rise to the qualities of the system. The component parts can be either material bodies or processes. In society considered as a whole, the parts can be the different social phenomena, processes, and ideas. The nature of the whole and its peculiarities depend chiefly on the internal nature of the parts. The change in the composition of the set of components entails changes in the whole and modifies its characteristics.

Churchman (1968) defines the environment as everything that is outside the system and over which there is no control. To be outside the system means not to belong to it, to be outside its limits, and that is difficult to determine. It exemplifies the issue of control with a system operating with a certain budget provided by any agency. If the system cannot change this budget by levelling it, then the budget is part of the system environment. If, on the contrary, some change is possible, then the budget will be part of the system itself. In this way, the control that the system is or is not able to exert over the various elements determines whether these elements belong to the system or to its environment.

What is the systems approach to information?
According to (Saracevic, 1996), Information Science (IC), in the course of its development and after the explosion of the informational phenomenon, was initially concerned with investigating issues related to information retrieval, despite its evolution towards the study of other themes, based on interdisciplinarity with other areas of knowledge, which are dedicated to the study of information within various contexts, He

expanded his interest in research on the information resource, going from the scientific to the professional field, as in the case of Information Management (IG).

According to Souza, Dias and Nassif (2011), Information Science is dedicated to the study of the general properties and conditions of information in terms of information sources, selection, the processes that enable its treatment and processing, its availability and retrieval, as well as its effective use. Different disciplines, sciences or areas of knowledge are also dedicated, in some way, to the study of information, such as Business Sciences, Economic Sciences, Computer Sciences, Communication Sciences, Production Engineering, etc.

IC prioritizes the theoretical foundations of the informational phenomenon and, concomitantly, processes and practices that enable the informational flow from its source to the use of information. Information Science reflects this trend and, consequently, research intertwines the most varied themes involving informational resources. Human beings have specific singularities, with their very different needs, namely: researchers in the traditional basic areas; researchers in the applied sciences; product development personnel; marketers; Engineers; and, more recently, executives and managers.

In other words, from the concern with the retrieval of information directed to the scientific field, it has been observed, more recently, the emergence of greater care with the flow and use of information in the scope of Management. This means that, in the field of relevant studies in IC, those linked to Information Systems, Information Management (IM), in particular, to information systems applied to different sciences and disciplines emerge.

Referring to the concept of information system, (Beatriz Marques, 2017), she states that "in an attempt to clarify this concept, and adopting a holistic view of Information and Knowledge, we seek to contextualize the different existing perspectives based on the concepts that are in its genesis: System, Information System (IS) and Information Technology System (ITS). In this context, we emphasize that the need for a "unitary vision of several disciplines (such as Archival Science, Library Science, Documentation, etc.) or of several sciences (such as Marketing, Management, Neuroscience, Psychology, Information Management, Innovation Management, Management of Information Technology Systems, etc.), contributes significantly to the affirmation, consolidation and enrichment of the core business of Information Science" (Marques, 2017b) and its transdisciplinary character".

According to (Fernández Marcial; Gomes and Marques, 2015, p.3), "information systems are defined by the participation of material, human and informational resources organized in an interrelated way, so as to allow inputs to be transformed into outputs - information products and services"

For Vickery (1973, p.1) "*An information system is an organisation of people, materials and machines that serves to facilitate the transfer of information from one person to another. Its funciono is social: to aid human communication*".

(Silva, 2006, p. 162), defines IS as: "a totality formed by the dynamic interaction of the parts, has a lasting structure (producing / receiving entity) with a flow of states in time, being constituted by the different types of information registered or not external to the subject', and may have a material / technological support". The elements that are part of the IS are: the human, informational, political, economic, social, technological, ecological, legal and cultural elements that interact, directly and indirectly, for the functioning of the system in all its dynamics, from the production / reception, organization and representation, storage, retrieval and dissemination of information. "An information system will therefore be one that has information as its central core and its management as its purpose."

To (Fernández Marcial; Gomes and Marques, 2015, p.5), the generic nature of this definition allows it to encompass all types of information (primary, secondary or tertiary), all types of information support (material or technological) and all types of structures (producing/receiving entities). In this context, and in an attempt to fully clarify the concepts and their applications, we consider that it is very important to distinguish between System, Service or Information Product.

According to (Machado, 1967), "the etymological origin of the term Service comes from the Latin *servitium*, and can be defined as, servitude, slave condition, slavery; in a collective sense, the slaves." According to (Houaiss & Villar, 2005, p. 7318), the Houaiss dictionary provides several definitions for the term Information Service and Public Utility Service: "1 - the purpose of obtaining information, especially confidential information; intelligence, secret service; 2 - the entity or staff involved in that activity (...). that useful to society, which is provided by the State for payment by those who use it"

Second, (Gomes, 2017, p. 54), (Gomes, 2017, p. 54), the Information Services or Information Units are the Archive, the Library, the Documentation Center or the Museum. In other words, the Services and their Information Products will be the natural/artificial consequence of the functioning of the IS, the outputs. "An Archive or a Library, as services, can be part of a System, while Organizations can constitute a System, but they cannot be confused with the IS (which comprises all the information produced/received and accumulated, regardless of the existence of a service that processes, stores, disseminates and preserves it)."

(Assis, 2006, p. 15), considers that an information product is "one that guarantees and covers the information needs of the members of the organization and contributes, through bulletins/reports and databases, so that users are served with a balanced mix of products".

According to (Carvalho, 2000, p. 260), the Technological or Informatic Information System (ITS) is one of the constitutive parts of the whole, that is, of the IS, so there is no polysemy between the two terms. Despite the various misunderstandings and semantic ambiguities that exist at the terminological level and that result from the use of the same term, SI, to designate different realities, we consider that this fact is due to the common characteristics of the object of analysis – information – and to the difficulty or impossibility of limiting it to the study of a single scientific area: (...)

"They all deal with information, they all are somewhat related to organizations or to the work carried out in organizations, and they all are related to information technology, either because they can benefit from its use or because they are made with computers or computer-based devices".
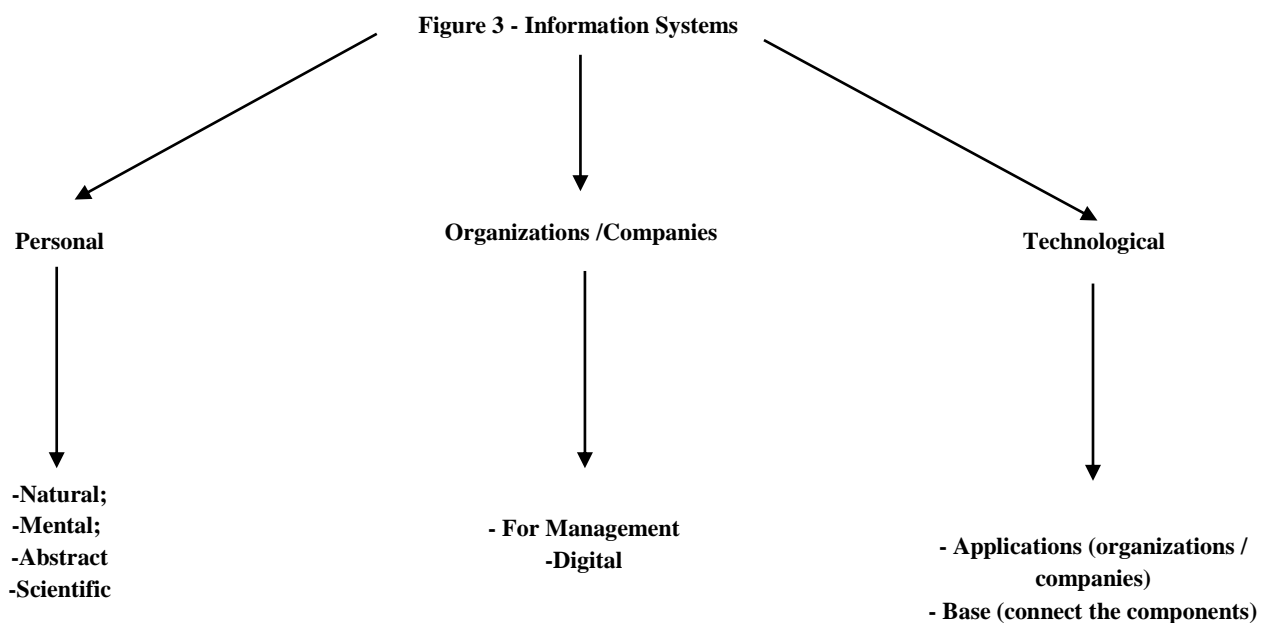
For (Karwowski, Rizzo, and Rodrick, 2003, p. 18), "*Information system (IS) can be defined as technologycal systems that manipulate, store, process, and disseminate information that has or is expected to have an impact on human organized behavior within any real context and use*."

Second, (Pessoa, 2017, v. 12, n. 2, p. 060-076), more than a set of data or processes, the object of study of IC is information understood as a human and social phenomenon. As the social sciences of a transdisciplinary nature, IC has evolved in the sense of demonstrating, at the level of its object of study, the "bankruptcy" of technological determinism and the "rise" of human and social determinism. SIT is is just one component, among many others, of the IS of Organizations and does not lead to success, it only makes the decision-making process easier or more agile, being a valuable aid to the efficiency and effectiveness of organizations

A scientific explanation for the behavior of living organisms, that is, of analyzing the whole (the integral understanding of the phenomena and, in the specific case under analysis, of the infocommunicational phenomenon from the interconnections and interactions that are established between its parts, the General Theory of Systems (GST) has developed a way of conceiving or looking at reality from various prisms or Types of Information Systems:

- **Physical systems** - relationships are physically measurable and derive from a conscious act of man;
- **Abstract systems** – relationships do not derive from a conscious act of man
- **Natural systems** - relationships are natural and are or are not perceived by man;
- **Closed systems** - with endogenous variables and absolute laws, since their behavior is not subject to the influence of external variables
- **Open systems** - when their behavior is strictly determined by internal variables.

In an attempt to classify Information Systems, we can, based on their nature and meaning, establish three major classes:

Figure 3 - Information Systems

Personal

Organizations /Companies

Technological

-Natural;
-Mental;
-Abstract
-Scientific

- For Management
-Digital

- Applications (organizations / companies)
- Base (connect the components)

Source: author elaboration

Ontology and Epistemology of Information
(Dahlberg, 19922 in: Alvarenga, 2001, p.8) highlights some difficulties in defining the term concept. In its Greek origin, the concept (*horos)* was composed of three elements: *logos, pragma and noema.* But its translation into Latin, *horos,* gave way to *terminus,* which would correspond only to the *Greek logos*, to its linguistic aspect. According to Dahlberg, many philosophers, throughout history, have used *terminus* as a concept and also as a linguistic element. In the eighteenth century, this issue was addressed by Christian Von Wolff, 1679-1754, with a translation of the term *horos* while maintaining the characteristics of sign (term) and content (Alvarenga, 2001, p.8).

The etymological reference is close to the core definitions of the concept used to this day. In the Houaiss Dictionary (Houaiss; Villar, 2008, p.783-784), the concept is defined as "a product of the faculty of conceiving" which would be the "[...] intellectual and cognitive faculty of the human being". In addition to the faculty of cognition and knowledge, the concept can also correspond to notion, idea, point of view, opinion, evaluation, moral conclusion, and reputation. These elements refer to other contexts of analysis, such as the philosophical and linguistic.

Ontology is the part of philosophy that deals with the nature of being, reality, and the existence of beings. *Ontos*, in Greek, means beings; *Logos*: knowledge, science. Etymologically, the word ontology means the "science of being." For (Mario Bunge, 1996), it is the philosophical study of

being and becoming. It refers, therefore, to the nature of the phenomena of matter. The ecology of knowledge and Inter and Transdisciplinarity (being/reality) are of a complex nature, therefore, inseparable from each other, because the subject brings with him the reality he tries to objectify. He is a subject, a human being who does not fragment the reality that surrounds him, who does not decontextualize knowledge. A multidimensional subject, with all its preceptive and logical structures, as well as social and cultural structures at the disposal of its process of knowledge construction, since reality does not exist separately from the human being.

Information Objectivism and Subjectivism

Objectivism is the "umbrella" for all schools of thought and theories that are based on the idea that for the development of knowledge, one must see the world as consisting of distinct objects that can and should be separated from their inventors and users. This idea is deeply entrenched in the sciences, such as economics, computer science, mathematics and sociology, as well as in the disciplines of business sciences, such as accounting and financial management. It also comprises a large part of information management and the adjacent fields of knowledge and learning, in theory and practice.

Second, (Lakoff & Johnson, 1980: 189), objectivism is associated with "scientific truth, rationality, precision, clarity, and impartiality. Objectivists assert that human behavior is determined by the forces of the outside world. People, however, cannot control these external forces and have difficulty understanding them. External forces and their control must be supported by knowledge in order to help people master their surroundings so that they can lead to successful performance. Therefore, for the development of knowledge, it becomes relevant in practice to focus on the external aspects of how to understand the world. The world outside human beings is thought to be composed of distinct real objects. These objects have inherent properties, implying that they are not affected by the way, how we think about them, or how they are used. A rose is a rose, regardless of how one perceives it.

Objects live in themselves, immune to the subjectivity of our thoughts, feelings, and emotions. They have specific meanings that can be known by investigating their properties. Roses have thorns, distinct smells, and other fixed properties that together define our interactions and understanding of this category of flowers. Once the properties are fully understood, true knowledge is durable. Building a theory based on the properties of information and knowledge is an approach favored by the relevant literatures (Shapiro & Varian, 1999 and Boisot, 1998).

Generally, the reasoning is that traditional theories were developed for industrial society that helped organizations control physical goods. Information and knowledge, however, have properties and characteristics derived from those physical goods. Typical examples of such idiosyncratic properties imply, for example, that information can be easily copied at minimal cost or that knowledge can appreciate its use. Understanding these objective properties and structuring them, in a structure of cause and abstract relationships of their effect, create the theory that guides organizations in the information and knowledge society.

To better understand our surroundings by exploring and abstracting the properties of objects and to use the knowledge gained to determine our relationship to objects, in objectivism, knowledge consists of "discrete and abstract" beads of representation of the understanding of objective reality, and learning is a step-by-step process directed towards the constant refinement of these factual representations. By clearly delineating objects with inherent properties and understanding how these properties relate to each other, it is considered to be the passage to knowledge and mastery over the surrounding environment for those who have this knowledge. Since knowledge in objectivism is factual, objective, and fixed, it is transferable to others by the meaning of communication. Through communication, the fixed meanings of objects are transferred from an active sender to a passive receiver, a view of communication that is known as the channel metaphor (Bryant, 2007).

In this view, the main source of miscommunication is human subjectivism. Communication breakdowns can occur when the sender uses inappropriate language or when the receiver is unaware of the exact meaning of the language used and misinterprets the message.

Science allows one to abstract experiential knowledge from practice, so that the correct, the general, and the definitive of reality can be given that are objective, universal, and unconditionally true. People can be objective, but only if they use clear language, consisting of words with fixed meanings, that match reality with what is being described. Science provides us with language. In addition, scientific methodologies allow us to present the models resulting from rational behavior, such as prescriptive theories that tell us how to succeed in the external environment. This view of the positivism of science, methodology, and knowledge also prevails in the literatures of information and knowledge. Finally, objectivism is preferred to subjectivism because it helps to rise above personal judgments, illusions, and human errors, and in this sense, promotes the clarity and impartiality of human relationships.

Subjectivism is the philosophical tradition that emerged in the twentieth century with discontent with objectivism that plays a game in elusive scientific theory. Subjectivism is used as an umbrella term for all schools of thought and theories that start from the idea that for the development of knowledge, we must focus on human beings and see them as acting in the world through making sense and modifying the context in which they live. It is our intention to present a number of basic understandings of subjectivism.

Neoclassical economics and the practice of social theory based on the representative applications of objectivism and subjectivism, respectively, are considered to be the light of discernment in both worlds of thought. Developed in hermeneutics, phenomenology, interpretive sociology, and critical theory, subjectivism has gained particular significance in the sciences, such as sociology, anthropology, psychology, and semiotics. Subjectivism can also be found in the literature of management and organizations, for example, in the cognitive theories of organizations or in the social theories of organizational learning (Bonifácio et al., 2004).

For (Lakoff & Johnson, 1980), subjectivism is opposed to objectivism, since it means "providing an alternative to human experience and understanding, rather than objective truth." In objectivism, human behavior is the result of forces acting in the world that people cannot control and find difficult to understand. The interest and motivation of Objectivism is consequently to provide people as law, with the rational knowledge that will help them function successfully in the outside world. Since objectivism is directed to the external aspects of understanding, the internal aspects are the primary domain of subjectivism.

Second, (Punham, 1983), what motivates subjectivism is the awareness, understanding, truth, and meaning that are relative to the physical and cultural context of people's way of life, as well as the mental structures of how the world works. When people's contexts and mental conceptions are seriously opposed to each other, there can be no valid goal, understanding, truth, and universal meaning. On the other hand, understanding, truth, and meaning are not strictly personal. When the meaning is entirely personal, each individual understanding can be called a truth. In this extreme case of subjectivism, the human sense would be totally spontaneous. The imaginative sky would be the limit.

For (Weick, 1995), subjectivity is relevant to many forms of organization, because it allows the collective action of organizational units – a department, a management team, a network of professionals – on the basis of locally shared experiences and understandings.

Truth and true knowledge are always dependent on how people experientially understand their worlds and what people find meaningful and meaningful in their lives. In turn, what people attach importance to is not only relevant in the objectivism of their rational knowledge, but also in their imagination, intuition, emotions, values, beliefs, experiences, and ambitions.

Second, (Lakoff and Johnson, 1980), we are not only objective and rational, as economists would have said so, but also "imaginatively rational." We have a dream and spend enormous amounts of time, energy, and money chasing it. Sometimes we don't share information simply because we don't like others, even if it damages our reputation. This imaginative rationality is elaborated in the literature of subjectivism, for example, relating ICT to hospitality (Ciborra, 2004), learning to identity (Wenger, 1998), information to power (Introna, 1997), and technological objects to sociability (Knorr-Cetina, 1997).

In Objectivism, all human aspects are ignored. In the search for objectivism, economic rationality and the disembodied truths of human beings are separated from the objects in their environment. The fundamental interest of subjectivism is to restore the "bridge" between the world of objects and that of the subject. We are part of the environment and as such, we change it and are changed by it. Hence, in subjectivism, understanding, truth, and meaning come from the interaction of the work with the physical environment and with people. In developing practice-relevant knowledge, we should not focus so much on the inherent properties of objects as on their interacting characteristics (Lakoff & Johnson, 1980).

The properties of interaction are the subjective meanings given to objects that are outside of people and that make sense of their world in the processes of human communication and negotiation, reflecting what they believe to be important for their private and organizational lives. Returning to the example of roses, the objectivism of knowledge represents its inherent properties, the characteristics of the rose that are independent of any human observer, just like thorns. However, no one gives roses to their girlfriend because they have thorns, but because they are mutually understood as the symbol of love. When the giver and the receiver unite this symbolic meaning of the rose, the message is transversal. Objectivists are right when they claim that objects exist in an objective reality independently of the will and thought of the human being. We don't construct the objects – a rose is a rose, but rather our interactions with them (Tsoukas, 2005).

Understanding, truth, and meaning are not always fixed nor do they reside in objects, waiting to be "driven" and "extracted," but are dynamically negotiated and socially constructed. Being the symbol of love is not an inherent property of roses, but an interactive property that emerges from the person's imagination. We learn to understand such meanings by interacting with the world. We learn by doing.

Information Ethics

Concept

According to Du Mont (1991), ethics aims to establish principles of human behavior that help people choose alternative forms of action. These considerations lead to definitions of ethics and morals, prompting us to refer to deontology as the study of the codes or ethics of the professions. Targino (2006, p. 135) states that the definitions of ethics originate from the "Greek term *ethos*, as the etymology suggests, it is the part of philosophy that deals with reflection on customs, encompassing guidelines". On the other hand, morality "is a term from the Latin *mores* that refers to acts and customs per se, that is, to the set of objective norms of conduct, changeable in time and space".

According to Sá (2007), the word ethics is sometimes associated with the sense of morality, but not always in an adequate way. It has also been understood as the science of human conduct towards the being and its fellow men, to study the action of men and their considerations of value. In this research, we emphasize the importance of ethics in the context of today's society and, especially, with regard to its social responsibility.

With a view to the theoretical foundation of the study, we approach the theme of professional ethics linked to the code of ethics, studied by deontology which, according to Targino (2006, p.135) "comes from the Greek *deontos*, duty; *logos,* discourse or treatise, etymologically equivalent to treatise or science of duty."

Territory

The field of information ethics has great relevance with regard to the recognition of human rights in an era of intensive use of Information and Communication Technologies (ICTs), especially the Internet. Hence the need to protect human rights in the context of digital technologies.

The *European Convention for the Protection of Human Rights and Fundamental Freedoms recognizes* as inalienable values the protection of the right to life, the prohibition of torture and slavery, and liberty, among others. The right to demand respect for private life and family life, representing a guarantee of the individual's freedom to choose how to interact with others in a shared world.

Rafael Capurro, (2009). It asserts that digital experiences suffer from what the philosopher calls "colonialism" and "cultural oppression" for the sake of corporate profit, and conceives an intercultural ethics of information in the absence of single and fixed parameters in the definition of various morals.

Second, (González De Gómez, 2009), intercultural information ethics is concerned with different issues depending on the culture with which it is dealt. Such questions are of an ethical nature and arise in the genesis of the development of ICTs. These are the problems arising from issues

such as copyright and intellectual property in general; freedom of expression; censorship; in the case of authoritarian or semi-democratic governments, technology as a means of political protest and/or social repression; the issue of digital exclusion by a large portion of the population due to the absence of economic conditions; the excessive use of technological means, especially by a generation that was born into a digital world, resulting in social or educational segregation; addiction to technologies; the protection of citizens' privacy as a responsibility of the State in the field of public security.

(Capurro, 2009) The current context in cyberspace is one of increasing supply of personal data both to digital companies and to the network of users to which the individual is connected. The protection of privacy is one of the ethical issues that arise in this context.

(Freire, 2010), adds that the confidentiality of data, the security of information, the practice of *spamming*, the dehumanization of the user due to the impersonality or "depersonalization" of virtual life, the dissemination of incriminating information to accuse an individual suspected of committing crimes, are other issues of concern that have arisen in the context of digital technologies, and are studied by information ethics.

Privacy

To have privacy means, in Western culture, to possess autonomy. (Rainer Kuhlen, in: Capurro, 2005), understands privacy under the denomination "informational autonomy", which consists of the individual's power of choice about the use of information in an electronic environment. The individual should enjoy freedom in the process of searching, selecting, even using the information. From the moment the autonomy of individuals is infringed, their freedom is violated, because, according to Beate Rössler, "the autonomy of privacy protection is the basis of freedom, and not the other way around" (Rössler, Apud Capurro; Eldred; Nagel, 2012, p. 79.

According to Floridi (ibid.), the private data associated with an individual, in the so-called infosphere, are seen as "packets of information", in which individuals are reduced to numbers and mere collections of information, so that human beings are treated as "informational entities". It sees personal privacy as a defense of individuals' information (information that is a constituent part of their very being) in order to avoid a process of alienation that the author advocates as being characteristic of the invasion of that privacy. The invasion of privacy and other ethical problems arising from the (mis)use of ICTs, especially the Internet, has a playful nature, which causes a diffusion of responsibility.

Information in the digital environment is immaterial in nature and the environment itself enables remote interaction with "faceless individuals", crimes committed in the *infosphere* are not perceived by their practitioners as something harmful, since cyberspace is seen as different from the real world. Internet users, acting in an "unreal environment", also see information as unreal. Therefore, the motives that cause cybercrimes (including invasion of privacy) are linked to what Floridi called "diffusion of responsibility".

Social media

Profit goes behind the scenes of social media interfaces. For-profit organizations, social networks like Facebook adopt business ploys to attract users' attention to their products and services. According to (Eli Pariser, 2012), a political and cyber activist, in his book "*The Invisible Filter*", these organizations win the loyalty of Internet users through content personalization and filtering. This is done by requesting and analyzing the personal data of its users (using technologies such as *cookies and beacons*).

According to (Pariser, 2012), with as much information as possible about their users, these organizations develop personalization algorithms to target ads, services and digital experiences appropriate to their users/customers, based on an analysis of their profile, thus boosting their sales. "Trying to know as much as possible about your users/customers has become the fundamental battle of the Digital Age, between Internet giants such as Google, Facebook, Apple and Microsoft." (PARISER, 2012, p. 12). The author argues that the problem lies in the moment when these digital companies use users/customers' data without their consent and, in more extreme cases, in a way that harms them in some way.

Social Responsibility

Ethics is not an area of great interest to politicians, but the factors that demonstrate the evolution and that expand their attributions and that influence their behavior in the performance of such functions have been identified. According to (Du Mont, 1991, p. 24), the responsibility of politicians is focused on individual politicians or on political parties (groups) with information needs. It categorizes the tasks into four stages: the set of information available on the Internet for consultation, citizens, users of information and finally society, which are led to think about ethical problems.

In the first stage, politicians have the responsibility for the set of information available on the Internet for consultation; in the second stage, they must be concerned with the citizens who are in the institutions, with the human side, since organizations want to have competent professionals to help them in the development of working conditions; in the third stage, the responsibility of politicians expands to the users (of the Internet and social networks). who need information with good services and, finally, the fourth stage reaches the maximum point, the question where politicians really understand the correct interpretation of social responsibility. At this stage, politicians are led to think about ethical dilemmas and reverse their responsibility for the development of society (Du Mont, 1991).

The production, collection, classification and dissemination of digitised knowledge and information (e.g. documents) raise ethical challenges, such as: How to guarantee a democratic right of access to knowledge and information? What kind of digitized knowledge and information should they create? How is the integrity and sustainability of this digitised knowledge and information ensured, in economic, technical and cultural terms? Who are the beneficiaries of these value-added services? The main value-added characteristics of digitized knowledge and information are:

- Access to digitized knowledge and information (e.g. documents) regardless of time and space:
- Combination of documents of different types, in different files (digital and/or classic);
- Search for non-digital documents and information, based on online search engines and catalogs;
- Combination of information and communication processes.

The ethical issue related to the availability of digital information, in accordance with the interests of political, economic, religious and military powers. Cultural and moral traditions also play an important role without, for example, what is considered offensive. The main ethical issue in this area has to do with the limits to intellectual freedom; The desire to exclude "bad" information is itself an ethical paradox, insofar as any exclusion that limits intellectual freedom must be avoided. There is this tendency in liberal societies. But this leads to ethical, moral, and legal conflicts (Froehlich, 1997; Frické / Mathiesen / Fallis, 2000).

The protection of intellectual property is one of the most important and difficult ethical, moral and legal issues in the field of information. Different moral and legal traditions have led to different protective laws in different regions of the world. The European tradition emphasizes the moral rights of authors. They are related to the person of the author and concern the integrity and authorship of his work, as well as his reputation. The Anglo-American tradition emphasizes ownership or economic rights (copyright). Conflicts arise when national and international laws and moral traditions protect different aspects of various media.

The forms of harmonization are the Berne Convention (1886) and the Universal Copyright Convention (1952) (UCC). Both treaties are administered by the World Intellectual Property Organization (WIPO). Digitization makes copying and reforming easier. Internationalization via the Internet changes the dimension and perspective of national legislation and control. This new situation raises questions such as: should information always be considered as property? Should the notion of knowledge sharing become predominant over the notion of ownership? Can public access to electronic information be guaranteed?

The ethical issues related to the dissemination of information are related to the problems of public access and the reference/brokerage services. The issue of access can be studied from a personal or social point of view. Individuals and society are interested in free access to information. At the same time, it must be recognised that information is a product of labour, and has an economic value that must be protected. The question is: what is the information and for whom should it be free. The issue of access, as a social issue, concerns the problem of creating equal opportunities for access, avoiding the gap between the rich and the poor, in information (digital divide).

Second, (Foster, 2000), the discourse on the digital divide is controversial and can lead to a confusion (theoretical and practical) between what can be seen as a social need, but not as a (human) right. The latter statement ends up expanding the power of the government in legitimizing its activities of control and government. With regard to referral/brokerage services, ethical conflicts may arise in relation to, for example, the right to confidentiality. Organizations can ask information workers to break confidentiality. Information practitioners should inform their users about the limits of their sources and methods. Finally, there is the issue of disinformation (or information malpractice) that can cause great (economic) damage to users.

Online and Offline Environments

Among the topics that emerge from the research agenda of this new area, whose main factors responsible for the inclusion of the topics indicated in the philosophical-interdisciplinary research agenda of Information Ethics are four:

- **Large amount of information available on (*online*) networks –** due to the capacity of ICTs to capture, store and transmit information;
- **Digitalization of everyday actions** – ICTs have become necessary for the performance of common actions in industrial and informational societies; since the evaluation of a moral action is considered from its digital relationship with the environment and only human beings are capable of performing such a relationship of moral judgment. (a **Discussion remains open. ! private property ! censorship ! freedom of expression ! digital identity (e-ID) ! accessibility ! surveillance society ! digital divide ! confidentiality ! privacy ! cybercrime ! ubiquitous computing and IoT ! digital citizenship ! internet governance, etc!**tag.
- **Tacit acceptance** – the novelty present in technological development promotes a certain fascination (in fact or for economic interests), generating a period of use of ICTs;
- **Familiarity** – on the one hand, the daily coexistence with digital technologies promotes in people the feeling of familiarity in relation to these artifacts (even when there is no knowledge about their use); on the other hand, familiarity can come from a knowledge of the facts, that is, from an effective *know-how* in the use of such technologies.

In view of the amount of information available in the *online environment*, the absence of a single control center for this medium is highlighted. Since, among such information, we have those referring to music, videos, books, among others, which, in general, have copyrights (of an authorial and patrimonial nature regulated by legislation and which limit the free use of intellectual production), it may be questioned: should there be free access to such information, regardless of the limits of private property?

An affirmative answer to this question would characterize free accessibility, but if not, we will have, in principle, a type of censorship (control of content). But we can also ask: does limiting access to intellectual property really constitute a type of censorship? Thus, one of the ethical and legal issues of great impact of ICTs in society is highlighted: on the one hand, the mere abolition of copyright will make it impossible for "artists" to support themselves through their intellectual work, especially researchers, writers and musicians; On the other hand, however, as with other human professional activities, there is a whole set of business interests that profit from limitation/availability.

Information and the technological and cultural context of its transition

The development of ICTs has ushered in a new era, first of all by multiplying the sources of information: markets are understood as transmission, storage and transformation capacities. The second finding is the increased sophistication of information processing processes which, through the use of intermediaries (types of services to companies – auditing, consulting and information services) or techniques and methods (hardware and software) are part of the decision-making of economic agents.

All of this requires the ability to organize collectively and specific knowledge requires, if so, long learning. The duration of these, which are often invoked to explain the persistence of weak growth in the developed economies, already widely seen in this information age, is not,

however, as extraordinary as it seems, if one takes into account the broad and systemic nature of the technological changes taking place. They can completely transform modes of communication and thought.

The Knowledge-Based Economy

The current problem of economic growth brings us to some essential but interrelated issues, such as globalisation and transnationalisation, information and knowledge, information services and innovation. The ongoing process of globalization of the world economy is characterised in the first place by the existence of a single economic system, at a global level (global market) that is interdependent between companies and transnational groups and that does not have an explicit and coherent system of regulation, which makes it susceptible to major and unexpected economic disturbances (Mário Murteira, 2001).

Today we are experiencing a profound technological revolution. In the last twenty years, more technological knowledge has been accumulated than in the entire history of mankind. This has a positive side, no doubt, due to the increasing productivity achieved, the advances in health, information and many others. But the truth is that technological progress has not been kept up with in institutional terms and is becoming explosive for humanity: gigantic industrial fishing boats clean the seas without worrying about tomorrow; modern chemistry and transport lead to the establishment of a worldwide network for the production and distribution of drugs that destroy millions of people; Thousands of laboratories today rehearse genetic manipulations without any control or regulation, and so on.

Technological evolution redefines our times and our spaces. The planet has "shrunk" in an impressive way. Telematics makes it possible for anyone to access databases from anywhere in the world, at very low costs, creating an integrated global scientific space. The international financial markets transfer millions of euros every day without any control from the central banks, which have a fundamentally national sphere of action. The absence of instruments to regulate the global economy prodigiously aggravates the global polarization between rich and poor. The capitalism of nations possessed strong instruments of social redistribution, so as to ensure a precarious balance between business efficiency and social justice. Global capitalism is accountable to no one.

Another axis of institutional transformation is given to us by the intense process of urbanization that has radically changed the way of life of the world's population in just a few generations. It can be seen that the world's large metropolises are acquiring a new weight in the process of managing companies, as poles of a set of internationalized activities and as articulators of the internal policies of countries. The structural transformation of work is another axis of the process, since it clearly poses the problem that unemployment is no longer the result of the absence of economic growth, but of economic growth itself. Large companies start to work with multiple spaces, since they hire cheap researchers in other regions of the planet, transfer production to countries with qualified but cheaper labor, and keep the general organization of the system in the country of origin, as well as the coordination of marketing and similar services.

In the global market, not only companies compete, but also nations. They seek to take the greatest competitive advantage from their geographic location when the opportunity arises. In this global market, information and capital flows are generated, with instantaneous movement of an unprecedented dimension, which give rise to a financial globalization that is probably the most evident facet of the globalization of the global economy (Murteira, 2000). The complex movement of the world economy is only possible because of the rapid development of technology, especially of new information and communication technologies. This does not mean that this vector is the only one in the whole process of social change. Economic growth was an epoch in which it related productive (industrial) capacity to investment in fixed capital, which in turn conditioned the growth of the economy, on the one hand, through increased production (more machines to be produced) and, on the other hand, through increased productivity resulting from technological progress incorporated in fixed capital, producing more and better than with previous technology.

Today, in the most advanced economies, the emphasis of growth is placed on the process of acquiring and managing the knowledge associated with information management. This change of interpretation results not only from the transformation that has taken place in the world economy, but also from the change in the prevailing view in the analysis of it. The essence of this new interpretation goes beyond investment in human and material resources, but also in knowledge itself. This new interpretation moves away from the simplistic view of economic growth and is a broad notion of the dematerialization of investment that leads us to a new interpretation of the relationship between science, technology and economic growth. Scientific research (primary, applied and developmental) makes it possible to develop more or less formalized networks that allow a constant movement of knowledge back and forth between research and the surrounding economic environment.

The development of knowledge becomes systemic, socialized and stimulated and, increasingly, determined by the functioning of the global market economy, thus dragging down the societal process of knowledge production and management, which seems to herald the emergence of a "knowledge-based economy", supported by new technologies and a new mode of production of knowledge itself. from a systemic perspective, encompassing the structural transformations that occur in national economies and in some services of the innovation process.

As the average standard of living of the population increases, demand shifts towards tertiary activities (services), but productivity growth is slower than in industry, so new problems arise related to the measurement and value creation of productivity in services, as well as the concept of innovation, as well as the distinction between industrial and service activities.

The concepts of national accounting, with decades of application, are beginning to be questioned, so that the measurement of recent economic growth phenomena raises some problems that are difficult to contextualize and measure, leading us to consider other important topics in this matter (De Brandt, 1995; Nicolau, 2000):

- Drivers of the rapid growth of certain categories of services;
- Specific role of information and communication technologies and their cluster of associated services.

There is the growth of a new network of clusters associated with the information and knowledge society, constituting a fundamental core in the development of the knowledge and information economy, comprising:

- **the telecommunications cluster and associated technical support services**;
- **The computing cluster itself** (computer and peripherals);
- **the software cluster and other** (production and marketing) related to information and communication technologies;
- **The cluster of information services** related to the production of information, content and related activities, such as management consultancy, auditing, **marketing services**, recruitment and training of staff and miscellaneous technical services (engineering, quality management, etc.).

These information services concern the collection, selection, processing, storage, analysis and dissemination of information, and are an important factor in structural competitiveness in the global market. The rapid growth of these services is explained by a number of factors, such as the trend towards outsourcing or subcontracting of certain activities carried out within companies and now acquired outside due to the imperatives of competition increased by globalisation and the demand for greater flexibility by organisations. Knowledge is something immaterial and not always easily transmitted. The passage through the formal education system is only one stage, although decisive for the formation of one's own ability to learn in a permanent process of learning the lives of people and organizations and which becomes decisive in this search for knowledge.

An unskilled worker with a low level of formal education is hardly able to learn and is doomed for life to unemployment or underemployment in precarious, low-paid occupations. At the other end of the spectrum is the knowledge *worker*, who is familiar with the knowledge valued by the market, who is mentally flexible, capable of learning quickly and supported by the field of information and communication technologies, and who can be self-employed for all or part of his or her working time (Charles Handy, 1999).

The knowledge-based economy is an interactive process between supply- and demand-side actors in a very specific knowledge market. This market supports a continuous process of innovation that is essential to sustain this knowledge-based economy as part of a globalising global system. This knowledge market has little in common with the usual conception of the term (market) in economics textbooks, and this problem remains to be explored and will lead us to the discussion of the concept of innovation. Innovation in industry could lie in new products, new processes, new sources of raw materials, or new market structures (Schumpeter, 1934). This concept of innovation is now considered too restrictive for several reasons, as it does not include changes in the company's internal organization and external relations. The knowledge economy is in gestation, it is an unfinished process with an unpredictable fate, even in the most advanced economies and which has already been called the "*Age of Transitions*" (Wallerstein et al., 2000, Mário Murteira, 2000).

Information and knowledge in innovation
The social, political, economic, technological and environmental transformations underway since the last decades of the twentieth century project the importance of information and knowledge in different dimensions of life in society. One of the aspects of growing interest in research is the inseparability between cognitive, informational, innovative and socio-spatial dynamics. The production, socialization and use of information and knowledge, in the conversion of these into innovation, constitute socio-cultural processes. The literature underlines the importance of tacit knowledge as a source of innovation and competitiveness.

The importance of information and knowledge at the beginning of the 21st century is associated with the development of ICTs, which in recent decades has produced significant transformations in the way of producing material and immaterial goods. ICTs provide the technological basis for new modes of reproduction and valorization of capital, whether financial capital transformed into information or productive capital, by allowing the flexibility of production and enabling the circulation of information, through its distribution channels (communication networks), its commercialization and consumption.

ICTs promote a greater socialization of knowledge, but do not prevent the growing worsening of social and territorial inequalities, and there is a certain convergence around the following aspects:
- The distinction between information and knowledge and access to it;
- Greater importance of tacit knowledge over codified knowledge (what we know is more than we can say or describe);
- The recognition that ICTs, although providing greater dissemination of information and codified knowledge, do not prevent their spatial and social concentration.

Knowledge is specific and differentiated, that is, in an economic and socio-cultural context, knowledge differs according to areas and communities of organizations. Tacit knowledge is usually associated with specific organizational and territorial contexts, and is transmitted and developed through interactions. The knowledge codified through ICTs is considered a basic differential of competitiveness, as well as one of the main sources of innovation.

The ability to produce new knowledge is the ability to process and recreate knowledge through learning processes that in turn convert that knowledge into action and innovation. This is relevant in developing countries. Learning is not limited to having access to information, but consists of the acquisition and construction of different types of knowledge, skills and abilities.

The dissemination and sharing of information and knowledge requires communication channels that provide the various flows of knowledge and learning in an interactive way, which leads to innovative performance on the part of managers. Cooperating managers introduce a greater number of innovations than non-cooperative managers, and the degree of innovation increases with the variety of partners communicating and cooperating in a network. It is important to understand and promote the conditions that favor the configuration of a communications system favoring interaction and cooperation, as well as the exchange of different types of information, knowledge and innovation.

The Value of Information

Information is a very valuable asset for a person or for a company/organization, since it supports decision-making. Associated with human interpretations and experiences, it nourishes knowledge. Using knowledge can broaden it, refine it, and improve your strategies. However, there may be loss, damage, inaccurate information or improper access. That is why it is very important to defend information. In the protection of information there are five pillars:

- **Integrity**: Information must be trustworthy.
- **Availability**: Information must be available to authorized persons. A provider that "goes down" and people don't have access to information is a security breach.
- **Non-repudiation:** sender and receiver cannot deny communication between them. How electronic signature works, for example.
- **Authenticity**: The information is actually from the advertised source. Beware of fake emails, fake slips, and fake websites.
- **Confidentiality:** access to information should be for whom it is allowed. Can anyone who accesses that information access it? If there is improper access, what problems will it cause?

What is the life cycle of information? A vulnerability can't always become a target for attacks. But it is possible. Therefore, all vulnerability, whether in the place where the information is stored (hardware, building installation, theft) or its operation (software, misuse of the system, bugs, flawed codes, weak passwords), must be identified, analyzed and constantly monitored. All monitoring must take into account the handling, storage, transportation, and disposal of information.

Every threat can materialize through a vulnerability and cause impacts to an organization or people. These impacts can range from mild to severe, often linked to the reliability of information. A piece of information can be:

- **Unrestricted** – anyone can access it.
- **Restricted** – authorized persons can access.
- **Confidential** – some people can access it.
- **Secret** – Few people have access. Take care of your information. It can be a bank password, a banking application, confidential files, private images, an organization's database, personal identification documents.

Social networks often provide data posted by users that can become a source for threats. Do you believe that even garbage, discarded papers, have become material for threats and attacks? There is a lot of personal or corporate information that malicious individuals can exploit. Take care of yourself, don't expose yourself!

Knowledge and Wisdom

Information is not the same thing as data, although the two words are often confused, so it is understandable that the subtle distinction between these concepts is essential. The data do not carry sense or meaning of facts, images or sounds, since they lack relational elements indispensable to the establishment of a complete meaning, lacking an internal relational structure for a cognitive purpose. This structure is one of the attributes of information. Data is transformed into information when its creator adds meaning to it (Davenport and Prusak, 1998). (Wiliam G. Zikmund, 2000, p.19) defines knowledge as "the mixture of information, experience, and understanding that provide a framework that can be applied in the evaluation of new information or new situations." Information "feeds" knowledge. Knowledge can thus be defined as a person's ability to relate complex information structures to a new context.

New contexts imply change, action and dynamism. Knowledge cannot be shared, although the technique and components of the information can be shared. When a person internalizes information to the point of being able to use it, we call it knowledge (Zikmund, 2000). This is a fluid mix of structured experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. In organizations, it is found not only in documents and reports, but also in organizational routines, processes, practices, and standards.

Knowledge originates from and is applied in the minds of knowers (Davenport and Prusak, 1998), (William Zikmund, 2000). Knowledge is information as valid and accepted, integrating data, acts, information and sometimes hypotheses. Knowledge requires someone to filter, combine, and interpret the information. Information can be considered as a "*substance*" that can be acquired, stored and possessed by a person or a group and transmitted from person to person or from group to group.

Information has a certain stability and is perhaps better seen as existing at the societal level (Davenport and Prusak, 1998). Although we can store it using various physical supports, the information itself is not physical, but abstract and not purely mental. Knowledge is stored in people's memories, but information is out there in the world. Whatever it is, there is somewhere between the physical world around people and the mental world of human thought.

Knowledge = Internalized information + ability to use it in new situations.

Knowledge is fundamentally and intrinsically found within people. These are more complex and unpredictable at the individual level than an entire society, so it is not surprising that knowledge is much more difficult to obtain than information. Knowledge exists mainly within people, it is an integral part of human complexity and unpredictability.

Knowledge has a fundamental duality: it is something that can be stored (at least sometimes we intend to do so) and something that flows (something that communicates from person to person). It is possibly the duality of knowledge (a thing that flows and a process of storage) that makes it difficult to process and manage. According to (Dahlberg, 2006) knowledge is organized into units of knowledge (concepts) according to their characteristics (objects/subjects/subjects). The organization of knowledge is related to a process of conceptual analysis of a domain of knowledge and from there, this is structured / architected generating a representation of knowledge about such domain that will be used for the organization of information about that domain of knowledge.

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Table – 5 Data, Information and Knowledge.

Datum	Information	Knowledge
Simple observations on the state of the world: • easily structured; • easily obtained by machines; • often quantified; • Easily transferable	Data endowed with relevance and purpose: • requires unit of analysis; • it requires consensus regarding the meaning; • it necessarily requires human mediation.	Valuable information of the human mind. It includes reflection, synthesis, context. • difficult to structure; • difficult to capture on machines; • often tacit; • difficult to transfer.

Source: (Davenport, 1998).

Data, information and knowledge must be seen and analysed from the continuous perspective of values and fundamentally marked by the growing human contribution – processing, management, action, result, learning and feedback, that is, human empowerment for actions that generate the desired results at the organisational level.

Table – 6 – Data, Information, Knowledge, Actions / Results

	Data Processing	Information Management	Knowledge Management	Actions/Results
Activities	• Data Capture • Data Definition • Data Storage • Data Modeling.	• Information Needs • Acquisition of information • Organization of Information • Distribution of Information	• Knowledge Creation • Knowledge Sharing • Use of Knowledge	• Strategies, alliances and initiatives • Products & Services • Processes • Systems • Structures • Values
Values	• Precision • Efficiency	• Access • Relevance	• Enables action • Value Creation	• Innovation • Apprenticeship
	"Once we have the data, we can analyze it."	"Getting the right information to the right person"	"If We Only Knew What We Know"	The ability to learn is the only sustainable advantage."

Source: Adapted from (Choo, 2002, p.258).

Today we know how people learn, but we also know that learning and teaching are not the same thing, that is, that they are two different processes. What has to be taught must be taught and cannot be learned in any other way, but what can be learned must be learned and cannot be taught.

According to Arendt (1989), human life on earth is related to three fundamental activities:

- **Life itself** – this activity is related to the biological process of the human body: birth, growth and decline of metabolism. It corresponds to an innate human condition, of how certain knowledges are born with man, (implicit knowledge). Human life has an initial stock of information that accumulates with living life.
- **Work** corresponds to the artificiality of human existence. It produces a world of things unlike any natural environment. With work, man practices the exchange of information (flows) in all directions to fulfill his sojourn on Earth. The human condition of work is the world. One of the qualities of this human condition is the creation and recording of information and its representation in its own code. With appropriation and elaboration, knowledge is generated.
- **Action** *is* the activity of the human condition that can only be practiced with other men. It corresponds to the human condition of plurality. Action is the condition of all man's life on earth. In it, man exercises his intelligence to introduce his knowledge into the space in which he lives, with the intention of modifying that space for the better, in order to add something to the social well-being of its inhabitants.

Active life is characterised by the stock and flows of information aggregated according to the criteria of interests of a community of potential recipients. They are stored in memory – in a conventional device or in digital systems and inserted into the information stock with the intention of later retrieval. Information flows refer to the follow-up, sequence, succession of dynamically produced events that determine the chain of events related to information practices.

The figure below illustrates the pyramid of information flows and stocks that relate to human experience. The pyramidal structure refers to the quantity plus at the bottom and minus at the top, in a qualification of subjective value in which less means more. The pyramid illustrates that human life is determined by knowledge, intelligence, and knowingness. Implicit knowledge exists, when it is born, knowledge is acquired through conquest, through *work* and is inserted in the practices of an *action* of intelligence with reality.

Figure 11 – Stock and Information Flows

(facts and events)
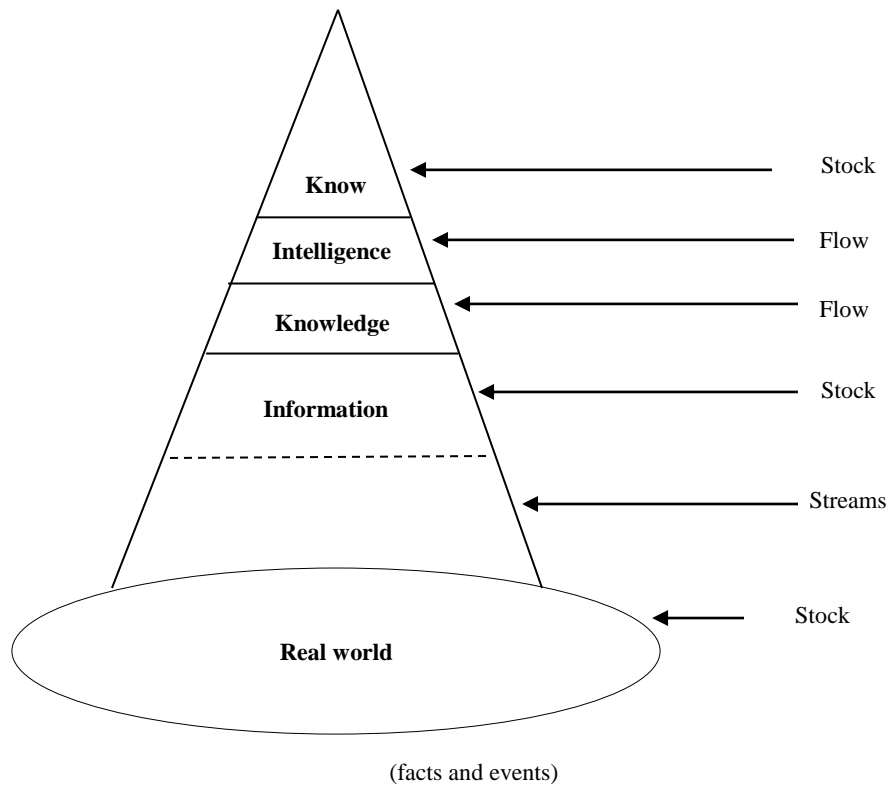
Source: adapted from Alda Barreto, (2002), The Condition of Information, São Paulo em Perspectiva, 16 (3).

In the real world there are many facts, events (stock) that produce weak and strong signals (flows) that activate human sensitivity and are transformed into information. Knowledge is nourished by the information of the succession of facts and events of the real world, which take place out of stock, in the mind of some thinking being and in a given social space. It is a subjective and differentiated path for each individual. That is why the concepts of "knowledge management" or "knowledge base" are incomprehensible. It is a conceptual absurdity, a technical impossibility, a cunning fallacy of perfect sophistry.

When we speak of intelligence, we assume the action of dynamic introduction of knowledge assimilated into the reality of the receiver; it can be characterized as a social, political, economic or technical action; It represents a set of voluntary acts by which the individual reworks his world and tries to modify his space. It is a beginning of what has not been done before and which is only completed in the plurality of politics and will always result in a change as a result of action; Even if there may be a return to a permanence in the initial state, the process itself will have changed reality.

You speak of knowing when you think of the knowledge you have accepted and accumulated in the containers of your mind. It's a stock that can be called upon to rework. It's a personal stock; but in a community it is added implicitly, to give signs of the state of improvement or social and cultural development of the community.

For several years now, schools and universities have had the education system as a model of education, but more and more emphasis is placed on learning. Today's "masters" teach in much the same way that the ancient masters did. Today we know that different people learn differently and that learning is personal. Each student has a different speed and a different pace of learning.

If a pace of learning is imposed on students, a speed, or a degree of attention, there will be little or no learning. There will only be weariness and endurance. Different people learn different subjects differently and at a different pace. You learn a subject and you teach a person.

Information and communication technologies are an extremely important tool in learning and not in teaching, that is, the teacher teaches students the functionalities of technologies and students learn, how they can use technologies (means of support) to support them to solve some of the problems of the day-to-day personal and the organization where they work.

Information and communication technologies can be seen as a means or an end. If they are seen as an end, what can be taught to students are the functionalities. If they are seen as a means of supporting decision-making, it means that they can be used in learning how to solve problems. For example, when we go to the doctor and take a CT scan of a part of the body, it means that information and communication technologies are used as a support/support for the diagnosis of the disease so that the doctor can make the best decision about the medication to take, what dosage of

the drug, etc., that is, we are using information technologies, as an instrument / tool to support the resolution of the problem, of the person's illness.

Information and communication technologies are a means that determine what messages can be sent and received. At the same time, technologies determine which messages cannot be sent and received, that is, we are in a phase of rapid transformation of the "media". Suffice it to recall that in the fifteenth century high technology was the book printed on paper and that in the twenty-first century information and communication technologies are bound to have a profound impact on schools and on the way in which people learn.

Before writing, the only way to learn was through manuscripts, listening to lectures and recitations. With the printed book, people began to learn by reading. Information and communication technologies are more "friendly" than printed books, especially for children, since their patience is unlimited. It doesn't matter how many mistakes the student may make, because the computer is always available for another attempt, no matter how many mistakes the student may make and whether the student is fast, slow, or normal to learn, not caring if the student thinks the subject is easy or difficult and doesn't care if the student intends to learn new things or review something they have already learned.

Then there is the media and with them a whole world of visual pedagogy. There are more hours of pedagogy compressed into an advertising *spot* than teachers can fit in a given long period of teaching. The content of the advertising *spot* is secondary, what matters is the skill, professionalism and persuasive power that exists in it.

Therefore, students today arrive at schools and universities with high expectations that can easily be frustrated. Schools and universities are resorting to the use of information and communication technologies, so that teachers are increasingly "supervisors" and "mentors" of student learning. The work of teachers is increasingly to help, guide, serve as an example and encourage students, that is, their work is no longer primarily to transmit the subject itself.

3.3 Information Sciences

Information Sciences (IC) will coexist with mathematical logic for the concept of information, influencing the success that Systemic Theory will increasingly obtain in scientific circles. Originating with Bertalanffy in the 1930s, this theory gained immense expression in the field of IC with the publication of Wiener's work on cybernetics in 1948. If the area of transmission and retrieval of information has its origin in the logic of the exact sciences (mathematics and physics), the Systemic Theory of information has its origin in principles of biology. The main idea is that the whole is greater than the parts and that the parts must be studied, necessarily, from the function they perform for the maintenance and survival of the whole. Biological principles come to be understood as a kind of general method for the study of any phenomenon. The logic is the same that governs the study of the human body: each part, each organ, is inserted into a system (respiratory, digestive, etc.) and apprehended from the role it plays in this system – and, consequently, from the role that this system plays in the whole, the human organism.

While the physical model thought of the processes in an essentially linear logic, of transport from one point to another (and how to optimize this transport), the systemic logic privileges the idea of cycle, of circularity: the whole process represents the output of some entity, and this output will cause the formation of new input elements – as usually expressed in the concepts of input and output. In a short time, this model began to be a great success in the various sciences, including those classified as social. Political science has adopted a model that predicts the choice of political leaders by vote, as the input mechanism, and the results of the work of the executive and legislative houses, as the output mechanism, which will provide the criteria to "feed" a new choice (a well-evaluated management will be reappointed; a management seen, as bad will be replaced by another).

In management, several theoretical models seek to determine the internal and external environment of the company, the risks and opportunities, the strengths and weaknesses. The organizational model of systems theory articulates a series of particular concepts, such as the idea of totality (the whole, such as a city, a company, a team), the objects that make up the totality (the members taken in isolation – people, groups, departments), the attributes of these objects (specific characteristics that each object has for the proper performance of its function), the processes (the "import" or input of something, the "export" or output, and the processing of that something, understood as the tasks necessary for the survival of the system) and the environment (that which is external to the totality, from which it draws the input elements and where it directs the output elements).

In the context of IC, the systemic theory presented two major manifestations. The first, at the macro level, is related to functionalist theories about the function of information in society. Several authors have dedicated themselves to mapping the importance of institutions and information services (libraries, archives, documentation centers, museums, etc.) for maintaining the balance of society: promoting the adequate socialization of members, ensuring the preservation of the cultural memory of previous generations, containing a repository of data to guide the actions and tasks to be performed, serve as a complement to educational activities, among others (Shera, 1970; Rivière, 1993). The second major relates to the development of theories about information systems. Several studies in this field have sought to determine and characterize the various processes necessary for the proper functioning of information systems. In these various studies, systemic concepts are present throughout the reasoning. Information systems are always thought of from the logic of the processes of entry (data entry, with the acquisition of informational items, the selection of these items for the composition of a given collection), processing (the informational items that enter an information system need to be described, cataloged, classified, indexed) and output (by the access to informational items by users, in the form of dissemination, delivery of information, lending, etc.).

One of the ideas of this theory, that systems need to be stable (i.e., they must maintain a certain dynamic of operation with control of what goes in and what goes out), even serves as a support for the five laws of librarianship (Ranganathan, 1931), particularly for the last of them, that the library is a growing organism. The need to maintain "homeostasis" means that an information system cannot grow and acquire new informational items ad infinitum: it needs to promote thinning, discarding, as a way to maintain a balance and continue fulfilling its functions. Other ideas of this theory, such as that the parts are interdependent with specific functions, are at the origin of the "principle of provenance",

which is fundamental in the field of archival theories. The same is true for the systemic idea of cycle, present in the theory of the three ages of archival documents (Schellenberg, 1973).

It is difficult to pinpoint when a new science emerges, even if it is a recent scientific discipline, as is the case of Information Science. However (Foskett, l969 and Ingwersen, l992) point to the date of l958 as one of the milestones in the formalization of the new discipline, when the Institute of Information Scientists (IIS) was founded in the United Kingdom. (Meadows, l990), describes the origin of the new discipline from specialized libraries (in industries and other organizations). According to the same author, the discipline underwent a marked development after the Second World War, due to the emergence of the Mathematical Theory of Information, described by Shanon and Weaver in the late 1940s.

This theory has been adopted by many other areas of knowledge because it explains the problems of transmitting messages through mechanical communication channels. The industrialization of the commercial press promoted the bibliographic explosion, a phenomenon no less important than the advent of Gutenberg's printing press around 1450, whose effects became more evident after World War II. His contribution to the development of Information Science was small, but important for the history of the field, as he attracted attention to two needs. The first was to clearly define the nature of the information with which the professionals in the area were concerned and, the second, to define the conceptual structure to be applied in the organization of that type of information.

According to (Pinheiro & Loureiro, 1995), Norbert Wiener in 1948, in his work "Cybernetics or control and communication in the animal and machine", and Claude Shannon and Warren Weaver in 1949, in the book "The mathematical theory of communication", marked the beginning of what would become Information Science. Also according to the authors, it was in the 1960s that the first concepts and definitions were elaborated and the debate on the origin and theoretical foundations of the new area of knowledge began" (Pinheiro & Loureiro, 1995, p. 42).

The authors point out several events that occurred in the 60s that signified the true milestones in the formation of a new disciplinary field: The conference held at the Georgia Institute of Technology in 1962; The Weinberg Report in 1963, Mikhailov's Computer Science in 1966, Rees and Saracevic's 1967 Study, and Borko's Definition in Information Science: What Is It? in 1968. (Borko, l968), defined information science as a discipline that investigates the properties and behavior of information, the forces that govern its flow, and the means of processing to optimize its accessibility and use. It relates to the body of knowledge relating to the production, collection, organization, storage, retrieval, interpretation, transmission, transformation and use of information. This includes research into the representation of information in natural and artificial systems [...]. It has a pure science component that investigates the essence of the subject without considering its application and another applied science component that develops services and products [...].

For (Goffman, l970), the goal of Information Science is to establish a unified scientific approach to studying the various phenomena surrounding the notion of information, whether such phenomena are found in biological processes in human existence or in machines created by human beings. Consequently, the subject must be related to the establishment of a set of fundamental principles that govern the behavior of the entire communication process and its associated information systems. (Griffith, 1980) proposed a similar definition that establishes Information Science as a discipline that seeks to create and structure a body of scientific, technological and systemic knowledge related to the transfer of information.

(Saracevic, l991), studied the evolution of Information Science and defined it as " a field dedicated to scientific issues and professional practice focused on the problems of the effective communication of knowledge and the records of knowledge among human beings, in the social, institutional or individual context of the use and needs of information. In dealing with these issues, the advantages of modern information and communication technologies (ICTs) are considered to be of particular interest." Information Science was born after the Second World War, to solve a major problem, which was also the great concern of both Documentation and Information Retrieval, which is to gather, organize and make accessible the cultural, scientific and technological knowledge produced around the world.

Information Science is a recent science and was born from the exact sciences, that is, seeking to achieve exact knowledge from the inspiration of mathematical and quantitative models. (Bronowski, 1977, p. 47), based on objectivity, sought to formulate universal laws of information "behavior". Strongly influenced by the empirical sciences, it intended to establish universal laws that represented the informational phenomenon and hence the need to resort to mathematical (information theory), physical (entropy) or biological (epidemiological theory) models. In the 1970s, a character entered the scene who redirected the focus of information science: "the man (decision-maker) and as such the human and social sciences also began to contribute with their methods and practices to the composition of this emerging science" (Cardoso, 1996: 73-74).

Initially closely linked to computation and the automatic retrieval of information, according to González de Gomez, 2000, p. 6), from the 1970s onwards, it made its effective inscription in the social sciences as a "symptom of the changes underway that would affect the production and direction of knowledge in the West" (González de Gomez, 2000, p. 2). It is from that decade onwards that we can refer to the "social foundations of information". However, some relevant questions are already posed to us, which is the branch of science that information science is closest to? What are the theories, concepts, and methods that feed information science? The first studies in information science as a social science were to study social reality from a statistical, i.e. quantitative, perspective.

(Berger & Luckmann, 1985), presented reality as something that is socially constructed and not as an existence in itself and pave the way for the understanding of information not as a given, something that would have meaning and importance in itself, but as a process. That is, something that will be perceived and understood in various ways by people, which according to Borko's (1968) definition of behavior and information flows, is something that is outside of people and with Buckland's (1991) definition that sees information as a "thing" external to people.

The subjectivity of information becomes fundamental for the understanding of the different planes of reality and the distinction between the different forms of knowledge and the mechanisms of their configuration and legitimation. People need to be included in studies of information and their everyday interactions, forms of expression and language, rites and social processes. Several studies can be presented as examples of the incorporation of these concepts in the field of information science studies, such as the sensemaking approach inaugurated by Dervin, Atwood &

Palmour, the studies of MacMullin & Taylor on people's values, the cognitive studies inspired by the theory of Maturana & Varela, the hermeneutic approach to information science, the studies of (Capurro, 2003), on information networks based on the theoretical framework of (Bourdieu, 1983. p. 46-81), as well as the bibliometric and scientific communication studies and the contributions of Foucault's Archaeology of Knowledge and the Sociology of Science (Latour, Knorr-Cetina, among others).

Information Science is a discipline that has a very wide field of practices, but does not yet have a defined theoretical field, as is the case with other areas of knowledge, such as Linguistics, Anthropology and others. It has not yet arrived at a theoretical construction that integrates all its concepts and practices. That is why it operates based on more or less fragmented theoretical constructions, for example, the Representation of Information would be a construct, among others. The most important feature of information science is its interdisciplinary nature in which the magnitude of the problems faced (ecological, ethnic and demographic) is demanding innovative solutions.

Information science has been consolidated from elements "borrowed" from mathematics, physics, biology, psychology, sociology, anthropology, semiology, communication theory and other sciences that have contributed to its foundation and applicability (Cardoso, 1996, p. 74). "Information science is not to be looked at as a classical discipline, but as a prototype of the new kind of science" (Wersig, 1993, p. 235). Information science is evolving towards new stages of dialogue and insertion in the social sciences. Reflection on the evolution of information science, its relations with the social sciences and as a model of science as a whole, is fundamental for research to continue and to incorporate all the accumulated knowledge in this process. Since scientific research is one of the main ways to formulate theories in an area, what can be seen is that Information Science research has been consolidating and opening new horizons of discussions over the last decades.

Great contributions have been made by professors and researchers in the various international universities. It can be seen that some important steps have been taken in order to theoretically strengthen the area of Information Science and that research is expanding and has a Scientific Community that over the years has been consolidating internationally. There are many challenges facing Information Science today. As an applied science, it needs to respond to society's demand for information and, as an object of research, to the needs of fundamental concepts in the area. The realization and sociability of research are the surest ways to create and share new paradigms. Thus, it becomes increasingly important to seek the theoretical, philosophical and social foundation in the Field of Information Science and, above all, to further strengthen its scientific community.

According to (Gómez, 2000) "Information Science emerges on the horizon of transformations of contemporary societies that have come to consider knowledge, communication, systems of meaning and the uses of language as objects of scientific research". In other words, Information Science is based on symbolic representations and runs into numerous problems concerning its scientificity. Currently, one of the main challenges of Information Science is, according to (Oliveira, 2001), to develop the ability to reflect and theorize about its practices and thus build its theoretical knowledge. Whatever the construction of the object of C.I., it must account for what the different disciplines, activities and social actors construct, signify and recognize, as information, at a time when this notion occupies a preferential place in all social activities, given that it composes both the contemporary definition of wealth and the formulation of cultural evidence. (Gómez, 2000).

(Oliveira, 2001), points out, in his study on research in Information Science, that "no concern was identified with the maintenance of basic or priority themes, a fact that suggests a search for research results without commitment to the production of specific knowledge in Information Science and a consequent pulverization." And this is reflected in the behavior of the research community, where it was found that:

- The theories are not cohesive;
- The impact of new technologies on information activities, both in storage and processing, as well as in their dissemination, has subverted important concepts in the area;
- The area is very sensitive to fads and the themes of the research projects follow the movements of the novelties that have emerged abroad.

Since scientific research is one of the main ways to formulate theories in an area, what can be seen is that research in Information Science has been consolidating itself over the last decades and opening new horizons of discussions. Great contributions have been made by professors and researchers in the various universities.

3.4 Information Science and the Sciences of Religion and Theology
Object of the Study of Theology

Theology is a science only if it has a real object of study. We can know many things about Zeus, the famous Greek deity, because the Greeks believed in him. It existed in the minds and subjectivity of many Greeks, but it cannot be the object of scientific investigation because it does not really exist, as a real personality, as a concrete object.

If the object of study is to be something real, available to be physically measured, something that exists concretely, something that can be investigated and objectively verifiable, then God, the true God, in Himself, cannot be the object of scientific investigation either. Although God is outside the investigator and his subjectivity, existing independently of his thought, he cannot be verifiable, observable, measurable, as the other objects of scientific investigation are. God is beyond scientific verification. It cannot be proven, although it exists objectively, that is, it exists outside the subjectivity of the investigator. Even if the investigator doesn't believe in it, it exists.

God can only be observable and knowable on his own terms, according to his own established rules, but he, in himself, is not the object of study.

What, then, is the object of scientific inquiry in theology? God? No! The most common definition of theology is "the science of God." Many definitions tend to interpret the term "theology" literally and come to the conclusion that God must be the object of man's scientific study. This idea is, in fact, unsatisfactory, because God is not amenable to investigation by an inferior being, for he has called all things into existence. He is the ultimate reality of everything, and He is the One who sets in order and systematizes all things.

Abraham Kuyper challenged this definition of theology as "the study of God," arguing that God cannot be under investigation, that is, under a microscope, as other fields of inquiry are. In a science, the researcher is always focused on the object being investigated. But that doesn't happen with God. It is over and beyond man's ability to investigate it. Man has neither the capacity nor the conditions to investigate God, because he is far beyond his knowledge, because his nature is infinitely superior and unattainable by man. If so, how can one know anything about God? Only through your self-revelation.

God is self-existent, not verifiable in himself, but he is a personal being who communicates and makes himself accessible, leaving marks on history, being knowable through revelational propositions that are recorded in Scripture. This, indeed, is the object of man's investigation. Man studies God through what God reveals about himself. Therefore, theology must be understood as the "science of revelation" or the "science of Scripture." Conversely, within the scientific study of theology, the investigator is under the "object" being investigated, because he depends on it to obtain the necessary information.

In the other sciences, the investigator works with elements that have no voluntary response, only reacting to stimuli that are governed by natural laws. But this is not the case in the scientific research of theology. In it, the investigator has no control over the "object" researched, as happens in the other sciences. In this sense, theology is a singular science. The investigator must be submissive to the information God gives of himself in his revelation, and be dependent upon and under the authority of the Scriptures.

The Study of Theology
The scientific study of any subject requires the appropriate means to be available. Theology is not studied scientifically, as physics or chemistry is studied. The means must be in line with the nature of the "objects" studied. The God of Holy Scripture is not an impersonal being, or the "Prime Mover" or the "First Cause," or a "Cosmic Force" for all things, as philosophies generally teach, but is an excellently personal God.

Because God is personal, we should seek to know Him in ways appropriate to people. Things can be studied by observation, by measurements, and by computation. Persons can be known only when two conditions are fulfilled: first, the person must communicate in intelligible language, and second, the one receiving the communication must respond with a measure of confidence. At this point, it is of the utmost importance to emphasize that trust is not a substitute for personal knowledge, although we must trust, because we do not know. Trust is the proper means of gaining knowledge from people; without this trust, we cannot know another person intimately, and without the theological equivalent, which we usually call faith—simply another word for the same thing—we cannot know God.

Faith is extremely important for the knowledge of God. There is no possibility of having any real knowledge of him without believing what he says. This is so with all personal beings. If we don't trust what people say, we won't know anything about them or the truth. In the study of personal beings, there has to be an element of communication and an element of trust in what is said. If there is no such communication, there will be no knowledge, and if there is no element of trust in what has been communicated, the knowledge will not be subjective. And when it is not subjective, it is not true knowledge for the researcher. The element of trust in a patient's information, in the study of psychology, for example, is fundamental. So, we can say, with certainty, that the element of trust in communication is something that should be considered scientific. It would be unscientific to dismiss this kind of conduct. If this is true in the study of the human sciences, it is also true in the study of the Divine Being in the manner, how it reveals itself, and how we react in response to its revelation. The God who is not wanted is not truly known. Unbelievers may know things about God by hearing about him, but this does not imply that they truly know him. Real knowledge implies communication and reflexive faith.

If a theologian-scientist does not have confidence or faith in his work, he is not behaving scientifically, because he is depriving himself of the necessary and appropriate means to obtain knowledge, and for this reason he has nothing to systematize. Only those who really trust in the communication received can do theology scientifically. That is to say, a theologian will not present valid research if he does not personally trust in Christ, who is the revealer of God. He communicates, as a personal being, and the scientific theologian works confidently with the information received, systematizing it.

There is no way to systematize if there is no data for systematization, that is, one cannot use any method for a science, if one does not have the "object" to be studied, nor the appropriate means to study it. With the first two criteria, one can begin to apply the third, that is, the systematization of the data received. There is no science without systematization of information. "But the method won't produce the worthwhile results unless the medium is available and put to use."

The researcher has to use all sources of information to develop his or her concepts. In theology, this is not much different. The theologian-scientist must use all resources for the systematic elaboration of his work.

Truth as a Goal
The goal of every scientist is to arrive at fair and truthful conclusions. But in this search for truth, the scientist must be honest and not allow his presuppositions to control the outcome of the research. Although the scientist theologian goes to the sources of information with presuppositions, because it is impossible to be a scientist without some kind of presupposition, he must not allow the search for truth to be hindered by his own feelings about the "object" being researched. The goal of your work is the attainment of truth. In this search, he must rely on some important and fundamental elements: divine revelation and faith, in order to work correctly with the information at his disposal.

It is common ground among believers that divine revelation is the focal point of study for theologians. Without it, there is no material for the study of theology. There is no truth, objectively speaking, without God's self-revelation. However, it must not be forgotten that theology is a science and, as such, has to work scientifically with data.

Theology is an intellectual discipline, a science, and it must, unlike the other sciences, begin with faith. Without faith, it is impossible to do theology. Understood in this way, faith precedes theology, because theology is elaborated with faith in the data that the scientist possesses.

Submission with faith to revelation produces theology. The more fidelity to God's revelation, the closer theology will be to the truth. "In this sense, a theologian must be something like a physical scientist, a chemist, a biologist, because each of them must deal with reality as it is, and not as he would like it to be."

The search for truth must be the ultimate and primary goal of the theologian who deals scientifically with God's revelation. And he must do this by believing what God says about himself, about men and about their relations with the world, believing in something that is indeed trustworthy.

Interdisciplinarity is a constitutive characteristic of the field of Religious Sciences and Theology. The assessment area itself is made up of two distinct disciplines. However, in addition, each of these two disciplines is constituted as a field in which the dialogue with other disciplines and areas of knowledge is essential for its theoretical-methodological development. As for the interdisciplinary work between the two main disciplines that constitute it, it is observed that the area must maintain and deepen the theoretical-methodological debate that aims to guarantee the epistemological specificities of each one of them, avoiding overlaps and submissions of any kind, with regard to methodologies and objects specific to each case.

However, safeguarding the principle of autonomy between both disciplines, it is important that interdisciplinary work is developed in the area, especially in what the theological and science(s) approaches of religion(s) can come to collaborate mutually in a better understanding of its objects and in the development of research and collaboration in the area with society. The interdisciplinary profile and the commitment of the area in this field are presupposed in the tree of knowledge. It should be stressed that this is not a watertight subdivision between the two disciplines that make up the area. Guided by the related themes described, researchers can recognize, in one or more subareas of the tree of knowledge, common fields of action. Therefore, the subareas of the area, considering their correlated themes, require an interdisciplinary research. They are disciplines from related areas, with which, preferably, a multi/inter/transdisciplinary relationship is established in the area, those originating from the major areas of the Humanities.

3.5   Information and Communication Technologies (ICT's)

Information and Communication Technologies (ICT's) are an area of knowledge that uses computing as a means to produce, transmit, store, access and use various data. As **Information and Communication Technologies** can encompass and be used in various contexts, their definition can be quite complex and broad. However, it is used to **process the data**, helping the user to achieve a certain goal. **Information and Communication Technologies can be divided into the following areas:**

- Programming (software production);
- Database (storage);
- Technical support (support);
- Data security (physical security);
- Tests.

A professional can work in the various areas of Information and Communication Technologies. These include programming, databases, technical support, data security, and quality testing. Security Analysts work mainly to **maintain and improve the security of a company/institution's data**, whether public or private, creating "barriers" that safeguard the security of equipment and data. In addition to working with operating systems and servers of the company / organization, it prevents intrusion attempts. In the event of a data intrusion, these professionals are also responsible for combating the threats and devising more efficient ways to prevent it from happening again.

Technical support is guaranteed by professionals who work in **the maintenance of *hardware*** (physical equipment), working on the repair of computers, problems with access to operating systems and/or applications (**software**), among other issues that appear in the daily life of a company / organization. To work in this area, it is necessary to understand the technical part of computer architecture. Professionals in the field of programming can work in several fields, because this is one of the most comprehensive areas of information and communication technologies and is more subdivided into other areas. This is because there are **several programming languages**, and professionals can focus on just one. There is, for example, programming for databases, for *web*, mobile and even games. Generally, an ICT professional who chooses an area of programming, seeks to specialize even more in that programming language.

Quality professionals work in the verification and analysis of *software* and applications even before they reach the market or the end customer of a company / organization. The professional who works with quality testing checks **the usability of an application or *software*** to know if its operation is as promised or with what the company / organization expects it to do.

Network Administrators are the professionals who are responsible for managing all the communication networks that exist within a company / organization, be it their computers or other equipment such as printers and the like. It is one of the areas of ICT that requires technical knowledge of *hardware* and *software (base),* since these professionals deal daily with the infrastructure of the company / organization, the installation and maintenance of the technological systems of the local network. Therefore, the professional in this area usually has a lot of experience in the area of ICT in general, understanding a little programming, technical support and database to perform their function effectively. The ICT industry includes "goods" from the industrial and information sectors, related to the storage, processing, transmission, dissemination and use of information, which can be tangible or intangible assets.

Figure – 13 – ICT's

Information, → Storage, → Processing, → Transmission, → Disclosure → , Use of Information

ICT's

Data Science
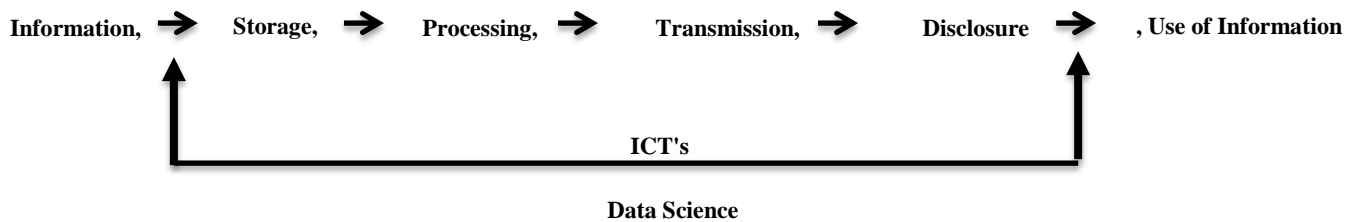
Source; Author elaboration

E-commerce refers to the use of the Internet and other global communication infrastructures to initiate commercial transactions, such as searches, orders, payments, etc. The synonym for information economy is the term "knowledge economy". These terms were originally used by Machlup and are still used today as a common term to refer to the information economy, which is a broader term.

Information becomes knowledge after being processed internally by a person. People who acquire the same set of information can internally generate different types of knowledge, for the same data. In addition, information sciences have a very specific and commonly agreed definition of information in the sense of resolving uncertainty, as well as the means and units to measure it, but there is no such definition of common agreement or unity of knowledge.

3.6 Human Cognition
The Sources of Information
In the management of information through the use of information sources, the process addresses different thematic axes that will imply the degree of effect and satisfaction of the use of information. For (Taylor, 1986), the user's detached information has no value. This suggests that actions involving the use of information have to be aligned with the specific informational needs of each user. In the organizational environment based on the information economy, (McGee and Prusak, 1994) state that competition between organizations is based on their ability to acquire, process, interpret and use information effectively. The organizations that lead this competition will be the big winners of the future.

(Le Coadic, 2004, p. 38), states that to use information is to work with the material information to obtain an effect that satisfies a need for information. It is highlighted that the use of information can contribute to the development of innovations in products and services in organizations. This statement can be proven in the research of (Sugahara and Jannuzzi, 2005), in which they verified that innovation in organizations can be determined by the way of using different types of information sources, both internal and external sources of information.

The use of information sources is influenced by internal and external elements of the organization.
Issues such as people's behavior, the historical construction of the organization, physical and technological infrastructure affect use. (Barbosa, 2006, p. 94) states that "[...] One cannot ignore the multiplicity of factors, of an individual and organizational nature, that determine the use of information in business environments." In view of the levels of recent technological developments (Petró, 2008, p. 64), he argues that man's wealth is measured by the degree of knowledge he holds through the transformation of information. Thus, to ensure the proper use of information, it is necessary to add value and, for this, it is important that the information is in accordance with the context in which the organization finds itself, that it is correct and complete, with a wealth of details and precision, in the appropriate format, made available at the right time and purpose and in the right place.

Another important aspect about the use of information is the financial cost of implementing, developing, operationalizing and keeping up to date an information set/collection/system. For (Choo, 2006, p. 77), the cost is multifaceted and includes important elements, such as physical accessibility and psychological cost (since asking for information is admitting one's own ignorance, which implies loss of prestige or status). (Assis, 2007), states that in the process of acquiring informational content, an organization should not be at the mercy of only what is made available on the network (Internet). New purchases must be judicious, and if there is no proper evaluation, the cost becomes prohibitive for any organization.

(Barbosa, 2008, p. 5), asserts that the investments made to train companies with the most modern information and communication technologies are very significant. The biggest difficulty is that, while the expenses are palpable, the benefits are uncertain, not tacit. And the path of information and knowledge in an organizational context is permeated with intricacies. (Choo, 2006, 2008), in his approach, tries to explain how organizations use information to create meaning, build knowledge and make decisions, and exposes that knowledge is sustained in three arenas: meaning creation, knowledge construction and decision-making. The author argues that an organization's information culture is determined by a large number of variables, such as its mission, history, leadership, employee traits, industry, national culture, and so on, and by factors such as industry, organizational size, physical dispersion, professional norms, and use of information technology.

Information culture can also be a function of an organization's maturity or stage of development. For (Fadel et al., 2010), the informational culture needs to be worked on in relation to the production, sharing, use and appropriation of information. Thus, it is essential to know the behavior and skills necessary for people to recognize their own informational needs.

According to (Fadel et al, 2010, p. 14), information is an input for any action, whether in the academic or business spheres. The generation of "new" knowledge is only possible when the information is appropriated by people through the establishment of cognitive relationships. It is important to understand that these elements form the basis for different actions: decision-making, planning, action strategies, among others,

which will result in the development of an organization. Thus, it is evident that the use of information achieves its value with the presence of the user and with the technological application for the generation of knowledge. And the use of this knowledge in organizations involves the creation of meaning, construction of knowledge and decision-making, contributing to this the informational culture, which needs to be worked on in relation to the production, sharing, use and appropriation of information.

Second, (Marchand, 2004), there are four fundamental ways to use information to create business value: through risk management, cost reduction, through the products and services offered to customers, and by using information to innovate. For (Earl, 2004), the value of information is a resource that can be reused, shared, distributed or exchanged without loss of value; In fact, the value is sometimes multiplied. Second, (Oliveira, 2005), in the use of information, the user chooses the information he will use, when he perceives the relevance and meaning between it and the problem to be solved. The use involves, therefore, the selection and processing (technical treatment) of the sources of information, to answer a question, solve a problem, make a decision, negotiate or understand a situation.

For (Goulart, 2007), business information is used in order to minimize environmental uncertainties and identify new business opportunities. An attempt should be made to stimulate the formation of an organizational culture focused on the effective use of information in the decision-making process. (Leitão and Nassif, 2009) In the organizational sensemaking approach to the use of information for strategic decision-making in organizations, it is possible to establish a relationship between context, meaning, and the process of forming meaning of information. Subjective aspects such as beliefs, organizational identity, and past experiences of the members of the organization are considered. Information becomes the raw material that the organization has at its disposal to construct meanings and understand what is happening around it.

Not all information is good, so some are better than others. Therefore, it is necessary to evaluate its quality. The criteria for assessing the quality of the information are as follows:
- **Relevance** - The information must be relevant, that is, it must be related to the facts, be available and be important to the person requesting it. The information will help people make decisions.
- **Timeliness** – Information must be timely, i.e., it must be available to the right person at the right time. If, for example, a person does not know the departure time of the train, they run the risk of missing it.
- **Accuracy** - the information must be accurate, this means that if the information is not accurate, they lose interest;
- **Reduced uncertainty** – Just think about making decisions with and without information; good information reduces uncertainty. Good information involves differences that make a difference;
- **Element of surprise –** information can be used to gain competitive advantages;
- **Accessibility** – information is useful only if people have access to it; accessibility is within the reach of those who can get the information, in time to be used efficiently and in the format that makes it useful. Electronic storage makes information more easily accessible than pencil-and-paper technology.

In the choice of sources of information, among others, the following criteria may be used:
- Ease of access.
- Rapidity.
- Reliability.
- Knowledge of sources.
- Updating information.

Ease of access does not mean that they are the best sources of information. The issue of speed is important, as researchers, managers and people work on specific demands, usually with deadlines. The agility and speed of access become important for the development of these activities, as well as the use of reliable sources of information, since researchers and consultants are often asked for technical-scientific opinions of importance to various sectors of society.

(Choo, 2006, p. 107), states that the person chooses information when he perceives a significant relationship between the content of the message and the task or problem at hand. This relationship is the management of information and the importance of using information sources for the generation of knowledge, based on their knowledge and their network of references, as well as on the content and form of the message. The perception of the quality of the source of information is mainly associated with the trust, security, fidelity and veracity of the source, and it is important that the information is useful, contextualized, integrated, quick and easy to access and in various formats. Another aspect is that the source is objective, concise, correct, direct, present in various literatures, reviewed and recognized.

The Informational Culture
It is important to understand the processes involved in the management of information sources and to verify the existing information culture. The question now arises: what are the necessary actions to improve the access, reliability, transfer/dissemination and organization of the information used in the activities developed? The complexity of the information management process is perceived, since numerous considerations and suggestions can be made, and there is no unanimous theme that allows the determination of specific analyses, although the need to better organize internal and external information has been highlighted.

Information should be treated as a strategic resource, and actions to improve access, reliability, transfer/dissemination of information are essential. There is a need to have an organized collection of information to be able to share it both internally and externally. Emphasis is placed on the importance of allocating financial resources to improve the development of all activities carried out, and the need to clearly define the specific attributions of each sector, which will facilitate the delineation of relevant information needs. It exposes the need to make information widely available, however, with filters to direct what should be disseminated externally or internally.

It also proposes the development of a systematic network/information services plan, predicting what, how and where it will be made available. It is noteworthy that the Library is pointed out as the most appropriate place for information management and the importance of using information sources to generate knowledge. Development of the entire process of production and dissemination of information. It is suggested to join the Library to the Institutional Communication sector for the development of actions that increase institutional visibility. Participants were asked about their perceptions about the process of using information, which involves the selection and processing (technical treatment) of information sources to answer a question, solve a problem, make a decision, negotiate or understand a situation.

Second, (Davenport, 2000), the Information Management Process model, is composed of four steps: Determination of Requirements, Procurement, Distribution and Use.

The use of diversified sources of information (scientific articles, research reports, patents, among others), of national or international origin, contributes to having a wealth of content for the development of local research, with global coverage. Some respondents understand that this process is the driving force of the actions carried out by the sector, that the exchange of internal and external information is constant and necessary. It was argued that the more access to methodologies and studies, the faster the results can be achieved, because learning from the mistakes and successes of other researchers contributes to the reduction of steps. It was stated that communication and information technologies facilitate the combination of information from different internal and external sources and, therefore, can contribute to data collection being carried out as close as possible to a given methodology.

The large amount of information allows for more opportunities, however, the process of innovating is still built through trial and error. The innovation process as a mediator in the environmental issue, as it contributes to the search for sources of information for resolutions in an impartial way, focusing on conservation or environmental preservation. To change the way people use information and build an informational culture is one of the challenges of information management in organizations. Generally speaking, a distinction can be made between informational behavior and information culture. Informational behavior refers to the way people deal with information, which includes searching, using, altering, exchanging, and accumulating. While behavior involves individual acts, the notion of culture encompasses groups or organizations, in particular the values and beliefs of a group. Informational culture is understood as the pattern of behaviors and attitudes that express the informational orientation of a company (Davenport, 2000).

In the research, there is no clear understanding about the existence or not of an informational culture. It can be seen that there are isolated actions, however, there is nothing officially formalized or actions carried out in an orchestrated way. According to (Davenport, 2000), it can be said that there are isolated informational behaviors, not an informational culture. Within each sector, the informational flow occurs in a way that is close to those pointed out by the literature, however, it cannot break through the walls of these sectors. When asked to produce or share information, virtually all servers are very willing to respond. Perhaps there is a need to define actions that provoke a dynamism in the informational processes so that an effective informational culture can be developed.

Information Processing

The individual cognition of managers suffers the effects of working in a collective system to process information concerning organizations. Managers are information workers, as they meet their needs as well as those of their colleagues and subordinates. Because they have a limited amount of time to manage the business(es), the information they receive must be synthesized, which can accumulate distortions upon distortions since the original information has been subject to all of the aforementioned trends.

(Corner, Kinichi and Keats, 1994) propose a model of "parallel" information processing in which they state that individuals and organizations operate on essentially the same principles, i.e., information processing begins with attention, continues with encoding, moves on to storage and retrieval, and culminates in choice and ends in the evaluation of outcomes.

- **Attention** - determines which information is processed and which is ignored;
- **Coding** – gives meaning to information by seeking a fit between it and existing categories, such as that a person is a "customer" rather than a "visitor"; categories are often the sources of trends because they eliminate nuance. Anything that is put in a category runs the risk of becoming a stereotype. At the heart of this process is a kind of common structure of group knowledge, whereby a common framework of interpretation becomes dominant;
- **Storage/Retrieval** – cognition begins with memory. In the case of people, memory is a web of associations between different items of information. In the case of organizations, information is also contained in maps, rules, procedures, conventions, and technologies. The link between the two is socialization: the organization works so that the individual accepts the existing routines that become part of the individual's memory, thus attuning cognition to the organization;
- **The Choice** – the process of choosing goes back and forth, from one stage to another and back again, before moving on to the decision. The decision may lead to the collection of additional information;
- **Results** – the results announce the beginning of the feedback process.

Mental Model

There are mental structures to organize knowledge. A mental misrepresentation is better than no representation, since it encourages and stimulates action (Karl Wieck, 1990, p.5). Mental models, also called "schemas," are bombarded with information, and the problem is how to store it and make it immediately available. Schemas do this by representing knowledge at different levels, which makes it possible for people to create complex pictures from rudimentary information to fill in the blanks.

Decision-makers have certain expectations associated with a particular scheme. What they see adds detail to those expectations and raises new questions, such as, what are likely developments in the economy or prices? These questions can emerge almost automatically from the schema. This is what makes them efficient from the point of view of information processing. However, inconsistent evidence is ignored. The cognitive school is an evolving school on the strategy formulation process and has the following as its main premises:

- Strategy formulation is a cognitive process that takes place in the strategist's mind;
- Strategies emerge as perspectives, in the form of concepts, schemas or mental models that shape the way managers deal with information coming from the surrounding environment and internally;
- Information flows through all the distorting filters, before being decoded by cognitive mental models; they are merely interpretations of a world that exists only in terms of how it is perceived;
- Strategies as a concept are difficult to realize and when carried out they fall below the optimal point and are subsequently difficult to change, when they are no longer viable.

The Imperfections of Information

Although there are types of market imperfections (Yao, 1988), strategic information theory focuses only on the competition of information imperfections. The theory thus focuses on and elaborates on the principles of Basic Resources, of the neoclassical assumption of complete and perfect information. These information imperfections create the opportunities of so-called information profitability that companies can exploit and take advantage of the significance of a strategic piece of information. The theory immediately emphasizes the resource of information and the ability to:

- Identify information imperfections in product and market factors;
- Maintain or change the imperfections of the information detected.

In order to be able to identify information imperfections and their origins, it is first necessary to understand them. Information imperfections derive from the behavior of assumptions of rationality and opportunism, and two types are distinguished: incomplete information and asymmetric information.

Incomplete information

Incomplete information is associated with the limits of rationality that explain the "limits of the rationality of the information of human behavior" (Simon, 1955). Urged to complete the search for all relevant information, the decision-maker only tries to achieve the subjectivity of satisfaction of the incomplete level of information" (Wigand, *et al*, 1997, p.75).

This type of behavior is known as satisfying. Satisfactory behavior and incomplete information are part of strategic decision-making in both product and market factors. With regard to market factors, for example about incomplete information on suppliers offering particular resources, who competitors are looking for, what price they are willing to charge and what differences in quality exist between the resources of different suppliers.

For example, incomplete information about what customers should be interested in to buy products, what competitors are competing, what demand is for a particular product, what price customers are willing to pay, and how they differ from competitors' products. Not only companies, but also all or part of the markets, including competitors, customers and suppliers face the imperfections of incomplete information.

Asymmetric information

Due to incomplete information and the fragmentation of knowledge in society as described by (Hayek, 1945), information can be asymmetrically distributed across market shares. Information asymmetries have been extensively analysed in all risks of economic transactions (Nobel Foundation, 2001; Akerlof, 1970; Spence and Stiglitz, 1985; Arrow, 1984; Clemons *et al,* 2001; Williamson, 1975).

However, according to (Nayyar, 1990), information asymmetries have rarely been seen as a strategic opportunity by companies. This assumes that information asymmetries provide opportunities under two conditions:

- High costs to obtain equality of information;
- The tendency to have opportunistic behavior (Williamson, 1975, p.31).

Information asymmetries can result from a favorable situation for either the supplier or the customer, depending on who has the advantage of the information and which of the two exploits this advantage opportunistically.

Maintain or change information imperfections

Strategic information focuses attention on the path of companies that do business with incomplete information and/or asymmetric information. Companies that identify the moments of incomplete information in market and/or product factors, decide what their strategic information is and what is desirable that:

- At that moment there is incomplete information;
- At this point, it develops information asymmetries, meaning both advantages or disadvantages vis-à-vis competitors, suppliers and/or customers. Companies decide whether to dedicate the resources and informational capabilities to:

✓ Maintain or change at the moment incomplete information on product and market factors, thereby influencing transparency positively or negatively;

✓ Maintain or change information asymmetries and thereby create advantages or disadvantages of information or equality of information.

Having made the decision to change a particular information asymmetry in relation to competitors, suppliers or customers, managers have to understand that these economic actors are also characterized by having rational and opportunistic behaviors. Therefore, organizations should use their resources and capacities to identify information imperfections, creating information equality, and should draw on their experience in information asymmetries and differences in interpretation (Williamson, 1975, pp. 32).

The theoretical contribution of this study is to be based on the empirical foundation of the recent development of the concepts of strategic information and information profitability. Basically, theory was available to examine and analyze the contribution of strategic information.

The concept developed in this research is based on current economic theory and based on contemporary theories about the functioning of the market. Organizations' resources seem to provide a basic approximation to examine how organizations expect to realize economic returns based on market imperfections. By adding the informational perspective, the role of information and the imperfections of information in business strategy can be made explicit through the basic resources of organizations according to (Barney, 1986 and Itami, 1987).

Identification of Information Imperfections

To understand how economic profitability can be identified and appropriated by strategic information, it is through knowledge of the origin of information imperfections. The costs of economic transactions (ETC) describe these origins and three types of information imperfections result from them (Williamson, 1975).

The theory of transaction costs attributes two behavioral appropriations to man: the limits of rationality and opportunism. We assume that men are intentionally rational but are limited by it. The limits of rationality lie outside the inability of the human brain. "This involves the neuropsychological limits of a skill, on the one hand, and on the other, the limits of language. Physical limits take the form of value and storage limits take the power of individuals to receive, store, and process information without error" (Williamson, 1975, p.21).

"Human cognitive capacities are as a rule insufficient to understand especially complex tasks, to recognize the need for relevant information, and to fully process all relevant information" (Wigand, Picot et al., 1997, p.75). Rationality explains the limited behavior of rational information (Simon 1955). "Instead of a thorough search of the relevant information, the decision-maker only tries to obtain subjective satisfaction, at an incomplete level of information" (Wigand, Picot et al., 1997, p.75). This type of behaviour is known as "satisfactory": looking for a solution that meets the level of the decision-maker's aspirations and therefore the acceptable one.

Humans are not only rational, they also engage in some opportunistic behaviors. (Williamson, 1975) describes opportunism as "the pursuit of one's own interest with cunning" involving "disbelief of threats and opportunities" in order to realize individual advantages (Williamson 1975, p.26). These advantages are also used to "select and distort the information discovered or discredit the opportunities that lead to the future" (Williamson, 1975, p.26). The claim is that, although not all humans behave opportunistically, it is difficult to predict in advance whether or not they will behave as such.

These two types of behaviors reflect the relationship between suppliers and customers in the market. The combination of opportunistic and rational behavior is the main cause for the three types of information imperfections in the transaction market:

- **Asymmetric information** – an asymmetric distribution of information from the parties involved in a transaction causes a strategic opportunity. "The critical impact of information on the optimal allocation of risk is not merely its presence or absence, but its inadequacy among economic agents" (Arrow 1969, p.55). (Williamson, 1975) brings together two conditions under which information asymmetry provides a strategic opportunity in transactions:

✓ High costs to obtain equality of information;

✓ Propensity of the parties for opportunistic behavior (Williamson, 1975, p.31). In other words, asymmetric information occurs when one party has information that is unknown to the other and difficult for the other party to obtain and provides an opportunity to exploit that information advantage through strategic alternatives.

Asymmetric information can result from a favorable situation for suppliers or customers, depending on who has that information. The opportunity is caused by the hidden information for the current transaction. One party to a business transaction is better informed about a relevant variable than the other. It is the invisibility of this private information that constitutes the essence of the imperfections of the information and introduces the risk to the other party (Douma and Schreuder, 1992, p.54).

Taking into consideration the possibility of opportunistic behavior, the party that owns the hidden information has no incentive to reveal the information if it is detrimental to it. As a consequence, any vendor that enters the market with a product or service that is particularly suitable for a particular market segment, will end up with the main benefits of competitors who benefit from that hidden information. Information imperfections are known as the enemies of selection (Arrow, 1984).

- **Information Ambiguity** – Information ambiguity in a business transaction can cause a strategic opportunity. Even in the case of complete information, different interpretations of the same information may occur. As a result of opportunism, these representations can be opportunistic in the sense that they can lead to an individual advantage for any supplier or customer.

The strategic opportunity for one of them is discovered when such opportunistic interpretation is not recognized by the other and results in:
✓ The customer's willingness to pay a high price for a product;
✓ The supplier's willingness to offer a product at a low price.

As a result of this opportunistic behavior, the party with the opportunistic interpretation has no incentive to share that information if it becomes a disadvantage to them.

- **Incomplete Information** – The strategic timeliness of incomplete information is hermetically related to the assumption of rationality. "The limits of rationality are certainly concerned with the extent to which the limits of rationality are reached—that is, under conditions of uncertainty and/or complexity. In the absence of any of these conditions for appropriation of contingent shares, they may be completely specific to this principle. (Williamson, 1975, p.22).

In an environment characterized by a high degree of complexity and uncertainty, the possibility of certain events occurring quickly becomes numerous. Under these circumstances, it is impossible for humans to acquire and analyze the complete information relevant to strategic decision-making. As explained before, this impossibility leads to "satisfying" behavior. The opportunity for incomplete information occurs when a customer is incompletely informed about the range of possibilities of the transaction and the products offered and vice versa.

Therefore, a customer who consents to an incomplete comparison of suppliers and their reciprocal differences may initiate a transaction with the worst supplier. For the supplier, this opportunity can be exploited by establishing a brand and advertising to become part of the subset of suppliers in the incomplete comparison of customers.

Fake News
Concept
False or falsified news is any type of "scam" that consists of the dissemination of content (information) through news portals, written or electronic press, radio, television and social networks that aim to misinform a specific audience. They are issued with the deliberate intention of deceiving, deceiving into error, manipulating personal decisions, discrediting or praising an institution, entity or person or obtaining economic benefits or political credit. By presenting fake news as real, it is considered a threat to the credibility of serious and honest media and professional journalists, and is a challenge to the receiving public.

The dissemination of fake news has aimed to influence the behavior of a community since antiquity, so its reach is directly related to the means of reproduction of information specific to each historical stage, its area and speed of propagation was scarce in the previous historical stages until the appearance of the mass media.

The development of information and communication technologies has made it possible for the spread of fake news and its use for political purposes to become a global concern. There is documentation that is believed to have been used in World War II, Joseph Goebbels, Adolf Hitler's confidant, spreading false messages about the opposition in order to create distrust.

Intentionally misleading and false content is different from satire or parody. These news stories often employ catchy or entirely fabricated headlines to increase readership, share, and click-through rates on the page.Internet.[2]In the latter case, it's similar to headlines"*Clickbait*", and is based on advertising revenue generated from this activity, regardless of the veracity of the stories published.[2]Fake news also undermines professional coverage of the press and makes it more difficult for journalists Cover meaningful news.[4][5]

Easy access *online* to ad revenue *online*, the increase in Political polarization and the popularity of Social Media, especially the timeline of the Facebook,[6][2] have implicated in the spread of news of this kind. The amount of *Sites* With anonymously hosted fake news and the lack of well-known publishers also growing, because it makes it difficult to prosecute authors for slander.[7] The relevance of this news has increased in a political reality "Post-Truth". In response, researchers have been studying the development of a psychological "vaccine" to help people detect false information.[8][9]

In addition to the spread of fake news through the *media*, the expression also defines, in a broader scope, the spread of rumors through social *media*, by ordinary users. Sometimes this can have serious consequences, such as the notorious case in 2014 of the lynching of a housewife in the city of Guarujá, on the coast of the state of São Paulo, Brazil.[10]

Michael Radutzky, a producer on *CBS*'s 60 Minutes,[13] has said that his show considers fake news to be "stories that are demonstrably false, have enormous popular appeal in the culture, and are consumed by millions of people". It does not include fake news that is "invoked by politicians against the media about the stories or comments they don't like."[14] Guy Campanile, also a producer on 60 Minutes, said: "We're talking about stories that are fabricated out of thin air. In general, deliberately created and that any by any definition are lies."[14] The intent and purpose behind fake news is important. In some cases, what appears to be fake news may actually be satire news, which uses exaggeration and introduces untrue elements with the aim of amusing or making a point, rather than deceiving. Advertisements can also be fake news.[2]

Claire Wardle, from *First Draft News* identifies seven types of fake news:[15]
1. Satire or parody ("not intended to do harm, but has the potential to deceive")
2. False connection ("when headlines, caption visuals don't support content")
3. Misleading content ("misuse of information to shape a problem or an individual")
4. False context ("when true content is shared with contextual false information")
5. Imposter content ("when true sources are forged" with false content)
6. Manipulated content ("when genuine information or images are manipulated to deceive," such as "doctored" photos)
7. Fabricated content ("new content is 100% false, designed to deceive and do harm")

In a more direct analysis, fake news would be "fraudulent imitations of journalistic genres, whose objective is to borrow the discursive marks of a social institution of democratic states to lead the reader to give greater credibility to its content"[18].

History
Reporters with various forms of "fake news," from an 1894 illustration by Frederick Burr Opper.Orson Welles explains to reporters the broadcast of *The War of the Worlds* on October 30, 1938 with an intentionally misleading image of Hillary Clinton over a 1977 photo of the Rev. Jim Jones of the Peoples Temple church.

Fake news is not unique to the 21st century. Throughout history, there are several episodes in which false rumors were spread, having major consequences.[25]

For instance:

- Roman politician and general Mark Antony committed suicide motivated by fake news. Mark Antony had been falsely told that his wife, Cleopatra, had also committed suicide.
- In the 8th century the Donation of Constantine was a fabricated story, in which supposedly Constantine had transferred his authority over Rome and the western part of the Roman Empire to the Pope.
- A few years before the French Revolution, various pamphlets were spread in Paris with news, often contradictory to each other, about the state of government bankruptcy. Eventually, with leaked information from the government, real information about the country's financial state went public.[26]
- Benjamin Franklin wrote fake news about murderous Indians who supposedly worked for King George III in order to sway public opinion in favor of the American Revolution.[26]
- In 1835 the newspaper*The New York Sun*It published fake news using the name of a real astronomer and a made-up colleague about the discovery of life on the Moon. The purpose of the news was to increase the newspaper's sales. The following month, the newspaper admitted that the articles were just hearsay.[26]
- Hannah Arendt argued that totalitarianism has massified disinformation.[27]
- In the course of theCold war, with the aim of confusing and misleading governments andNews AgenciesWesterners to error,Soviet intelligenceemployed strategies known as*Active measures*. These usedCounter-information,Media Manipulationanddisinformation.[32]Among theConspiracy theoriescreated byUSSRto manipulate and confuse themediaand governments of countries in theoccident, highlighted theINFEKTION operation,[33]that he threw at theUSAThe guilt for the "creation" of theAIDS, the accusations thatPresident Kennedy was assassinatedfor aplotplotted by theCIA.
- Fake news, forged by Soviet intelligence agencies through active measures, has turned out to be so convincing that some still continue to be credible in the twenty-first century.[32]

Among these and many other examples, it is possible to see that this is a resource that has been widely used in history, often with the purpose of benefiting someone or some social movement.[26]

21st Century

In the 21st century, the use and impact of fake news has become widespread, as has the use of the term. In addition to being used to create made-up stories to deceive readers, it is a resource used to increase the amount of readers online and thus increase the profits of websites. The term has also come to be used for satire news sites, which are not intended to deceive but to make comedies about real events shared in traditional media.[34][35]In February 2017, the U.S. presidentDonald Trumpgave new evidence to the*Fake news*accusing a reporter of theCNNof producing fake news and refused to answer their question at a press conference.[36]

Nowadays fake news quickly becomes popular with the help of social networks, such asFacebookand Twitteroften reach the*trend topics.*[37]These news, when not sponsored for political reasons, are funded by the "click industry" that large digital advertising platforms like GoogleAdSenseCreated.[38]Websites can make money based on clicks on advertisements, and to increase their click-through rates and visitors to their pages. Publications are made with eye-catching headlines, often distorting the published text, or with lies.[39]For example, it's not uncommon for websites togossipinvent the death of some celebrity to attract readers.[40]

It's important to analyze how and why fake news spreads easily on social media. They are usually emotionally appealing, or reinforce some political ideal, helping to reinforce beliefs, and so they are widely shared and commented on even before users check the news sources.[39]Another effect highlighted in social media is that ofEcho Chamber,[41]in which people isolate themselves from groups with different ideals, thus avoiding the counterpoint of ideals that may reveal the falsity of some news. The PresidentsTrump(USA) andBolsonaro(Brazil) are the target of criticism in relation to the dissemination or sharing of false and/or dangerous news.

Companies such as Google and Facebook have been accused[42][43] as being responsible for facilitating the spread of fake news. Facebook, with its search algorithms, and Google, with its search engine, are today the main ways for young people to access news in their daily lives.[44] Both companies have recently pledged to combat this problem,[45][46] Google, for example, has blocked some fake news sites from its ad networks, thus blocking the source of revenue from their ad networks, and has added a new feature to its news search engine.[21] During the health crisis caused by the Covid-19 pandemic, Twitter, Instagram, and Facebook blocked Jair Bolsonaro's publications to prevent the spread of "disinformation that could cause physical harm to people" and "content that opposes instructions coming from official sources and that could increase the risk of transmission" of the virus.[47]

Impact

The spread of fake news is facilitated by large-scale access to social media, and its impacts can be just as vast. Even in cases where false information is conveyed by involuntary error or with the simple intention of provoking humor, they arouse in the receiver a reaction based on falsehoods, and for this very reason it is wrong. They are often disseminated intentionally, with the aim of distorting reality and creating an artificial reality, seeking to induce the receiver to assume a certain point of view that contradicts the facts.[51][52][53]

On a broad scale, the proliferation of fake news tends to create great uncertainty and distrust in the public about knowledge in general, starting to indiscriminately doubt all sources of information, no longer knowing how to identify the truth or where to look for it.[55][54][56] Deliberate fake news campaigns are a direct attack on the right to information, and can discredit the mainstream press, professors, and academic producers of legitimate knowledge, such as scientists, historians, and sociologists. They can ruin solid reputations and create false idols, they can cause damage to institutions, harm democracy and citizenship, strengthen prejudices, foster conspiracy theories, and artificially influence political, cultural, economic, and social processes.[52][57][58][54]

Repeated fake news can often "become" truth in front of the public, and its effects can be persistent. Scientific studies show that even after being confronted with the truth, many people influenced by fake news continue to hold erroneous opinions.[59] The effect is magnified because the human psyche has a tendency to seek confirmation of what it believes and to disqualify what clashes with its convictions,[53] [56] and is subject to "herd behavior", that is, the mass letting of oneself be carried away by a powerful influencer, without the actions passing through the sieve of criticism and logic.

Fake news is an important component in the concept of post-truth, which characterizes a context where objective facts have less power to shape public opinion than appeals to emotion and personal beliefs, and where anything can become "truth" according to the interests of the individuals or groups who control the information.[53] In the reflection of the philosopher Janine Ribeiro, "this tendency brings a sad element. It's not just telling a lie. By saying 'post', it's as if the truth is over and it doesn't matter anymore. That's the difference between post-truth and all the forms of information manipulation we've had before." For USP professor Eugenio Bucci, referring to the sphere of politics, "the idea contained therein is relatively simple: politics would have definitively broken with the factual truth and is now making use of other resources to amalgamate the followers of its currents. It's as if politics has succumbed to religious-type discourse and resigned itself to it."[61]

An example of the vast potential impact of fake news is the denial of reality, of global warming, leading to the adoption of economic plans that favor the use of fossil fuels, contradicting the scientific consensus that points to these fuels as the main cause of warming.[53] They also influenced the outcome of the 2016 U.S. elections[62][63] the 2018 Brazilian elections,[64][65] and the outcome of the plebiscite that decided the United Kingdom's exit from the European Union (Brexit),[66][67] just to name a few recent examples of major repercussions.

Information Surveillance
Introduction

The process of information "surveillance" is essentially a process of observing the behaviour of the market, competitors and people (political surveillance) and is intended to monitor the evolution of the global market, the sector and people's behaviour and preferences (referential information marketing). This "surveillance" is ensured, in most cases, by an organic unit (Staff body - the "analysts" or those responsible for planning) which is in accordance with the model of the Carnegie (Ansoff, et al., 1965) and Positioning (Porter, et al., 1980) schools.

The process of "surveillance", for example, on the economic activity of many football clubs focuses essentially on monitoring the evolution and economic forecasts for the European Union and Portugal, namely the countries with the greatest expression in the European economy (Germany, France and the United Kingdom), as well as on the countries with which there is a greater affinity. such as Italy, Ireland and Greece, and their evolution is accompanied by the internal structures of football clubs (the "analysts").

This information is collected, selected, processed, analysed and reflected on by the "analysts". In their treatment, they use techniques of prediction by extrapolation and problem analysis, as a way to understand the structure of the domestic, European and international economy, as well as the interdependence between the various sectors of the economy, as a way to identify possible future scenarios. Information on the foreseeable development of the European economy and of Portugal thus becomes fundamental in defining the strategy of each economic group or football club.

The process of "surveillance" on socio-cultural and demographic changes in some football clubs is an irregular process, of temporary and periodic evaluation, essentially on social and demographic changes in Portugal and includes demographic patterns, lifestyles, social structure, social trends and is intended to ascertain the changes that have occurred in this period of time, such as the birth rate, the level of education, the borrowing capacity, being ensured by the "analysts" of each football club (internals and/or consultants).

However, the importance given to this information is less when compared to the information on the economic aspects, but it becomes fundamental in the implementation of the strategy of each club, as a way to identify the target customers (fans and sympathizers) for each product and/or service, as it allows them to understand the local needs, the available resources, legal requirements and funding adjustments. To process this information, the "analysts" resort to simple analysis techniques.

The process of "surveillance" related to political aspects is a "permanent" process that is intended to monitor, on a "continuous" basis, the political decisions of the government with an impact on the sector, such as unemployment policy, labour policy, tax policy, as well as community directives that may have an impact on the sector and society in general (e.g. Basel II agreement), is ensured by internal "analysts" and/or consultants.

The information collected, selected, processed and analysed consists of legislation on various aspects, such as economic, fiscal, labour, educational, health, and tourism policies, as a way of identifying possible opportunities and threats for the sector. In the treatment of this information, football clubs use simple analysis techniques to understand the political influences on the business.

Electronic Surveillance

Technological surveillance is an organized, selective and permanent process of capturing information from the outside and from the organization itself about science, technology and people, in order to select, analyze, disseminate and communicate, to convert it into knowledge to make decisions with less risk and to be able to anticipate changes in the environment of organizations, as well as the tracking and analysis of the environment of competitors. Technological Surveillance, also called Technological Intelligence or Technological Competitive Intelligence is a business practice because it brings together various analytical techniques and models. The platform's search engine can be automated and consists of a tool for tracking and mining digital information.

Technological Surveillance encompasses all types of documentation that can be used for analysis and reflection on business management. Information ranging from:
- Fairs & Events

- Competitor Information
- News about the organization's sector of activity
- Opinions on the sector of activity (experiences, users, etc.)
- Publications of interest (regulations, patents, newsletters)
- Scientific articles, patent information

In the ever-changing Global Society in which competition and the continuous process of innovation are part of the happening of organizations, it is necessary for survival to know the actions and alerts that take place in the sector of activity of public and private organizations.

Surveillance processes (knowing the environment and people (behaviour and preferences) have always existed within organisational structures, but now with globalisation:
- Rapid and accelerated changes;
- Information has a great impact through ICTs;
- Continuous research of stratagems for Innovation, as the key to the future;

Public and private organizations use specialized tools in the capture and document structure of relevant information for their benefit.

The processing of information allows us to better understand the environment and people's preferences and behavior, and to reflect on the path to be taken by organizations, that is, on the offer of products and services. Technology Surveillance can enable organizations to:
- Know technological and commercial changes;
- Reduction of risks in decision-making;
- Know customer preferences;
- Know the human capital (skills and abilities).

This whole process of information capture is converted into knowledge for organizations, in practice Competitive Intelligence, which consists of analyzing the factors that influence the competitiveness of organizations in order to act successfully in the processes of generating Innovation in the global environment of Business Intelligence.

There is no single type of surveillance. Many authors have contributed to the debate on the definitions of surveillance, proposals for management models, instruments and experiences; building a broad theoretical framework of the discipline.

Information and Strategic Decision Making
For strategic decision-making, it is important to identify and know the internal and external sources of information, which involve the global and immediate environment of the organization, since these sources vary in format, nature and content, which will influence the strategy formulation process and the respective decision-making.

Second, (Cunha, 2001), the sources of information are manuscripts and printed publications, as well as objects, such as mineral samples, works of art or museum pieces, which can be divided into three categories: primary documents, secondary documents and tertiary documents. (Choo, 1994, 2006), classifies organizational sources of information into four categories: external and personal, external and impersonal, internal and personal, and internal and impersonal. The author argues that information is an intrinsic component of almost everything an organization does

(Pacheco and Valentim, 2010, p. 334), state that the categorization of information sources allows us to understand the dimension of each one and its function, that is, primary sources express the direct interference of the author; secondary sources facilitate the use of knowledge from primary sources, since there is a differentiated treatment for them according to their function and arrangement; and tertiary sources allow primary and secondary sources to be found.

(Brum and Barbosa, 2009, p. 60) divide the sources of information on the Internet into several sectors, that is, there are many ways to access information through the Internet, such as: mailing lists, electronic mail (e-mail), information via electronic mail (newsletter), commercial information via electronic mail (e-mail marketing), virtual chat rooms (chat), instant messengers, search engines or search engines, intranets, extranets, and the websites themselves available on the web. (Tomaél et al., 2004), define ten criteria that involve the perceptions of quality of information sources on the Internet: identification information, consistency of information, reliability of information, adequacy of the source, internal links, external links, ease of use, font layout, perceived constraints and user support. (Eppler, 2006), states that the problems involving the quality of information are: information overload, misinterpretation of signals and information, and misuse of information

Based on the information economy, (McGee and Prusak, 1994), they state that competition between organizations is based on their ability to acquire, process, interpret and use information effectively. The organizations that lead this competition will be the big winners of the future. (Le Coadic, 2004, p. 38), states that to use information is to work with the resource information to obtain an effect that satisfies a need for information. It is highlighted that the use of information can contribute to the development of innovations in products and services in organizations.

(Petró, 2008, p. 64), states that the wealth of entrepreneurs and managers is measured by the degree of knowledge they hold through the transformation of information into knowledge. Thus, to ensure the proper use of information, it is necessary to add value and, for this, it is important that the information is in accordance with the context in which the organization finds itself, that it is correct and complete, with a wealth of details and precision, in the appropriate format, made available at the right time and in the right place.

Second, (Straus and Radnor, 2004), in the global and interdependent economy there are large flows of information, so information plays an increasingly decisive role in the strategy of organizations and countries for several reasons:

- Be important in strategic decision-making;
- Be important to innovate products and services with higher added value;
- Be relevant to a country's competitive advantage;
- To be a factor of synergy within organizations;
- Be influential on the behavior of individuals and groups, inside and outside organizations.

(Lesca and Almeida, 1994), state that information is not yet managed to match its strategic potential. According to the same authors, organizations can be grouped into three groups with regard to information management:

- Those that manage information as a strategic resource and as a competitive weapon;
- Those that manage information, but not strategically;
- Those that are insensitive to the issue of strategic information management and the possible competitive advantages they could obtain.

Second, (Lesca, 1986), it is difficult to state what information means for organizations and as such divides information into three types:

- **Operating information** - information necessary for the day-to-day operation of the organization.
- It is day-to-day supervision and control information related to daily transactions; It is repetitive, exact and formal and is subject to the most varied interpretations by those who use it.
- **Influence information** - information that influences the behavior of agents inside and outside the organization.
- From this information, the managers of the organizations seek to maximize the cooperation / relationship between the agents in favor of the company. It does not have an operational character, but seeks to influence the behavior of employees and external agents, such as in the motivation for promotional campaigns of products and/or services, in order to achieve certain objectives;
- **Anticipatory information** – information that allows organizations to detect in advance changes (discontinuities) in the surrounding environment (socioeconomic, political-legal, technological, environmental and others), enabling them to obtain some kind of advantage or avoid risks.

This is information related to the evolution of the surrounding environment (long-term concerns) and that has little or no relation to daily activities (products and/or services offered to the market). Anticipatory information (weak and strong signals) can take many forms, from rumours, to rumors, to scientific articles, etc.

It can be fragmented, highly uncertain and characterised by ambiguity and lack of clarity. Anticipatory information is rarely completely and clearly defined, and it is common for it to be associated with things that are not very systematic, inserted in a context shrouded in uncertainty. In general, anticipatory information can be produced by social and environmental cues called weak and/or strong signals.

Being well informed means much more than having a significant amount of information: it means having pertinent, interesting, useful, selected information (Freitas and Janissek-Muniz, 2006). To this end, it is essential to be predisposed, proactive, attentive to the surrounding environment of organizations, seeking to listen and know the market, anticipate movements, observe needs and expectations (whether declared or implicit) of the market. Quantity is not what is sought, but rather privileging attention, speed, selectivity and quality of information, which needs not only to be perceived, but also collected, interpreted and disseminated.

The relevance of a piece of information can be defined based on a series of criteria or characteristics that will make a certain piece of information useful (Freitas and Janissek-Muniz, 2006): what type of information? What information? What to privilege? How to find it? Information for what and for whom? Information obtained where? Why "this" information? Information obtained how? Information obtained when? Information delivered when? Information to do what? Information for decision-making, or decision for information?

How to select the pertinent information? In complex and turbulent environments, it is not enough for information to be interesting if it is not known, updated, accessible and, above all, bearers of anticipatory meaning. The surveillance of information for strategic decision-making privileges the idea of anticipating and detecting changes or possible discontinuities (*ruptures*, *radical changes*) that may occur in the organization's surrounding environment. Aguilar, in 1967, had compared the company's surroundings to the ship's radar, which can potentially signal immediate or future events.

(Ansoff, 1975), introduced the theme of weak signals with the purpose of identifying possible discontinuities, threats and/or opportunities, arising from the global and immediate environment, in advance. In the face of economic, socio-political and technological instability. (Ansoff, 1975; 1984), argued that strategic planning based only on quantitative, logical, historical data and trends did not contemplate strategic discontinuities and surprises. In an increasingly turbulent universe, the very notion of planning, as an objective set *a prior*, becomes inadequate, so that the ability to react and adapt to changes in the environment is decisive and thus moves from planning to strategic management.

In economic theory, the taking into account the perception of the environment by managers was successively guided by the function of information leading to the corresponding anticipations and underlying beliefs. In management theory, these same concepts have been gradually introduced and acquired around strategy, to the extent that the surrounding environment is formed by other "actors" acting in an analogous way. Managers' beliefs are increasingly formalized with the help of cognitive sciences, as well as epistemic logic (hierarchical beliefs) and cognitive psychology (belief review).

The exchange of information between managers is also studied in conjunction with the cognitive sciences, in terms of the coordination they allow (distributed cognition) and the dynamics they induce (learning process). By deepening the definition of weak signals (Lesca and Blanco, 2002), they consider aspects that characterize these signals, which were taken up and detailed later by (Janissek-Muniz, Freitas and Lesca, 2007), and (Lesca and Lesca, 2011).

Table - 7: Characteristics of Anticipation

Characteristics of the weak signal	Justification for the word "weak"	Difference to information used by managers
Fragmented	The information is incomplete, only a fragment of the information is made available, requiring other information to make any sense.	Full information
Disseminated	Dispersed and mixed with various useless information and raw data, which makes it difficult to identify.	Structured information
Strange / Unexpected / Surprising	Unusual, unexpected-looking, unfamiliar information. Found, probably, by chance.	Usual, family information
Ambiguous	A weak signal type of information does not speak for itself (or, on the contrary, very ambiguous). Many interpretations can be made. It doesn't have an obvious cause link. It is unclear, ambivalent, misguided.	Clear information
Unperceived usefulness (weak or none)	Without an obvious and/or apparent link to a current concern. The same information can be strongly questioning to one person and totally of no apparent interest to others. A weak signal is seemingly devoid of operational significance.	Information needed to perform a task, or solve a problem
Not very visible, difficult to detect	A weak signal easily remains unnoticed: concealed, hidden, sunk in a jumbling amount of data. Hardly detectable. The detection of a weak signal is not only about searching for information, it requires skill and learning to perceive it.	Information requested by the decision-maker / user
Random / Unpredictable	A weak signal doesn't show up when you need it. It appears randomly, unexpectedly.	Repetitive information
Miscellaneous formats	A weak signal takes many forms: writing, drawing, photography, sound, dialogue, smell, taste, etc.	Information with little variable presentation

Source: Adapted from (Janissek-Muniz, Freitas and Lesca, 2007) and (Lesca and Lesca, 2011).

The qualification of weak signals is related to the signal strength: weak. If, on the one hand, there are signs categorized in this way, it is because there are also more intense signals, the strong ones, which according to (Ansoff, 1984), are visible and concrete information that allow the evaluation of the impact and the design of plans and actions.

Second, (Ansoff, 1975), a signal strengthens as the information becomes more specific. This implies, according to (Mendonça, Cardoso and Caraça, 2012), a notion of distance in relation to the event or surprise that is being signaled (a). Weak signals differ from strong signals in that they are less visible and have a greater distance from the impact of future changes. Strong signals emerge whenever there is strong evidence of change, the identification of which can also be perceived through a group of related weak signals. It is important to note that the authors do not suggest irrelevance of strong signals for strategic decision-making. (Lesca and Lesca, 2011), as well as (Mendonça et al., 2012), only emphasize the strategic importance of weak signals, or rather, the importance of what weak signals can incite, boost, warn and anticipate; In addition to the dangers inherent in ignoring them, leaving little or no time for decision or action, it can have negative consequences for business continuity.

(Mendonça et al., 2012), and (Lesca and Lesca, 2011), state that an isolated weak signal is not significant. The value of weak signals is the result of a process of interaction between the observer and what is observed, that is, it is dependent on the perspective of each one. That is why a weak signal may be relevant for some, while for others it is completely negligible, hence the need for an interpretation or creation of meaning from them, especially if carried out collectively.

In order to highlight the importance of what weak signals can stimulate, (Lesca and Lesca, 2011), they cite possible outcomes from the interpretation of weak signals: a new product or a new use for an existing product; a new potential customer; a new potential supplier; a new potential competitor to whom attention needs to be directed; a new potential partner; a new technology, which may result in opportunities or threats. In practical terms, weak signals can be compared to faint and distant clouds that may dissipate or, on the contrary, may approach the place where we are and turn into heavier clouds (strong signals) that may cause heavy rain (quantifiable information), floods, *tsunami*, etc.

Ansoff attributes to *Weak signals* an anticipatory character. According to the author, *Weak signals* are elements that can awaken, in the attentive and sensitive strategic decision-maker, a feeling that something important seems to be starting or may happen (discontinuities/opportunities and/or threats) in the relevant environment of the organization. It should be noted, however, that the intuition in this case is activated by information that will have been perceived and examined closely. Ansoff calls this *"graduated response through amplification and response to weak signals"*, which can be seen in the following figure:

4. DISCUSSION, CONCLUSIONS AND CLUES FOR FURTHER INVESTIGATION

4.1 General Considerations

From the analysis of the fundamentals of the interdisciplinarity of Information of the different Sciences and the Ethics of Information, it is verified in practice that human values are not respected to dignify good human conduct. Public and private organizations use Cookies and hidden trackers to collect information about people (behavior and preferences) to build/create huge databases with the virtual profile of users of information (social networks and other technological products) and sell it to public and private organizations/companies, including the different political and security police.

The privacy policy does not always exist, in terms of legislation (laws, norms) and when it does exist it is full of dilemmas and communicative-informational distortions that affect people's privacy, but benefit companies in terms of Informational Marketing on Social Networks, etc. with the prospect of a significant increase in commercial revenues, oriented to the facilitation of information and communication technologies.

In the Digital Society, "everything" cannot be valid, so the ethical dimension of information is directly related to knowing how to dose information and communication and, at the same time, balancing conflicting human values, so that the results of people's actions in the professional and leisure environment are focused on justice and collective social and economic well-being. This requires reflection on action. Defining criteria for the ethical and legal use of information or following pre-existing criteria (laws, resolutions, standards) is also a characteristic of this dimension.

Thus, it is considered that this is a dimension that manifests itself, mainly, in informational situations that involve a problem/dilemma, a conflict of values, a positioning and/or a decision-making, since in practice, for example:

There is a lot of debate about whether the glass is half full or half empty. These are two truths. The intervening parties from different perspectives of each truth exhaust the arguments with a lot of prose (this happens a lot in justice, because the glass is not quite full, since there are 5 deciliters missing, so the glass is more empty than full. What is the decision? It depends on the decision-maker.

We are discussing the objectivity and subjectivity of information, but not reality, because the reality is whether or not the glass has water and whether someone is thirsty.

4.2 Media Culture

Currently, we are changing from the Global Society to the Digital Society due to the process of globalization of information supported by technological changes, so the culture of virtuality is being created that technologies solve almost all problems, referring to the most diverse social quadrants, except the military conflicts of war, where human life has little or no value (it is "cannon fodder"), because the "business/interests of the military industry and military and political power overlap". Hence, the "Owners of Power" choose to use and exploit false information to exhaustion, debauched the lives of people and organizations/countries, without limits, in the right to (dis)inform and seeking to do justice through the media.

Also, the public likes scandals and police officers like to show/publicize the success of their investigations. These two realities, together with the other two situations we have just mentioned above, increasingly compromise truth and justice. All this ends up making it even more complicated if one takes into account that, deontologically, "journalists" are covered by professional secrecy, where, if at all, they are not obliged to disclose their sources of information.

4.3 The Role of Journalism

Undoubtedly, journalism plays an extremely important role **in denouncing fake news about illegal and/or criminal activities,** so the activity of journalists cannot be limited, except in the cases expressly stated in the CRP, **but one cannot want to do social justice through the media.** Hence, it is often difficult to know where the false information originates.

Human rights, in various historical documents, are the hallmark of human civilization and democracy. In view of the dynamics of contemporary and globalized life, where the Internet plays a crucial role in the exercise of human rights, particularly freedom of expression and the right to privacy, these continue to be a challenge to public authorities and citizens themselves. The traditional problems of violations of fundamental rights still need to be regulated and protected in the digital environment.

4.4. Freedom

Freedoms that merge, intersect and conflict on the **Internet,** that is, the freedom of some to speak, the freedom of others not to be spoken; the collection, sharing and manipulation of personal data – without the authorisation or knowledge of its owners, for non-democratic purposes; social engineering at the service of governments and power, the control of minds, the control of people and opinions in elections; The charm of social networks and the disenchantment of what they can show of human nature.

4.5 The Legislation

Legislation as part of the solution tries to address these old problems, now revised in the guise of technology; Technology as part of the solution, which does not stop innovating in order to find new ways to protect users; People... to whom part of the solution should also be addressed. Ethics, balance and care because in no man's land everyone is in charge and no one is in charge, re-educating is necessary...

4.6 Privacy

Privacy is a subjective feeling of human beings about their personal space that is territorial, physical, mental or psychological and should be considered a mechanism developed throughout life in the context of social interaction and coexistence with other human beings. Privacy should occupy a high place in human rights, coexisting with several others of the same nature, such as the rights to the inviolability of the home, to the secrecy of correspondence, to image, unfolding in various restrictions and prohibitions, being, therefore, a fundamentally defensive right.

Privacy is related to the feelings of comfort and trust that you have in relation to others, and it is in these two measures that it is managed, on the basis of choosing the permanence or absence of these same people, «My loneliness has nothing to do with the presence, or absence, of people. [...] In fact; I hate those who rob me of solitude without truly offering me company in return." Yalom, (2015).

Privacy goes hand in hand with values, such as the privacy of one's private life, in any domain, be it the intimate and personal sphere (family, affective and sexual life, health status, religious and political beliefs). The privacy of individuals/citizens and organizations should be a very present concern of democratic States, particularly public authorities, to be able to manage this information, for specific purposes, namely, for the construction of public policies, and at the same time to safeguard the protection of people's privacy.

The amplification of communication, exponentiated by the Internet, has promoted new forms of freedom, with emphasis on the freedom of expression of individuals, but in the same way, it has placed many risks in the exercise of the right to privacy, since the digital universe is a territory that belongs to no one (network), it opens up a range of questions about these two fundamental rights, namely, What is privacy on the Internet? What is its nature and limits? How do you protect privacy in this exhibition space, how do you minimize the damage caused by new forms of crime (*cybercrime*), how do you protect information? How is the right to security of citizens' privacy guaranteed, with the full exercise of their freedom of expression? And how should users act in this digital world, where their private sphere is more diverse?

4.7 Justice

The Legal **Sciences** perform the interpretation of norms relating to social phenomena. **The basis** of these sciences is the conflicts between human beings. In a community of people, norms establish the parameters on which these relationships are based. The law must be fully complied with, otherwise those who stand for justice must act with discipline to enforce it.

The role of legal practitioners is to integrate all **human beings into the same rational system of laws** (a system of norms or juridical rules that outlines certain forms of behavior for men, giving them the possibility to act) that must define a standard of principles and **values, such as morality, equity, ethics and justice. in order to maintain** the equality of all human beings before the law, that is, a balance between the objective law **(the established norm)** and the subjective law **(man's ability** to decide his destiny), as a way of **ensuring a serious, rigorous, transparent and ethical interpretation/application of legal norms and laws**.

Related rights: freedom of expression and freedom of the media, the rule of law and a fair trial in order to eliminate petty crime hotspots, easier resolution of crimes, prevention of possible crime actors, detection and countering of threats to public security, contributing to more effective police work; strengthening people's sense of security, improving the reconstruction of events, identifying criminal actors, gradually eroding the presumption of innocence, systematically desensitizing society, maintaining a homogeneous society, losing diversity through the observer effect, gradually eroding the rule of law, proximity to a surveillance state, strengthening people's sense of insecurity, high costs, monitoring and insufficient supervision, etc.

The Right to privacy and the right to be forgotten, with regard to its applicability in virtual environments (digital systems), it can be seen that the guarantees foreseen, from the internal or external perspective, about personality rights, have gained new outlines and postures, in view of the apex of the informational revolution, provided by information and communication technologies.

The protection of privacy is at its core in the system of protection of the dignity of the human person and represents the apex of the protection of the intimate life of the individual, which must be preserved and not interrupted by the actions of the State, the media and other agents of society, with a few exceptions.

On the other hand, the right to be forgotten, as mentioned, represents a new field of law, permeated by the right to information and the right to freedom of expression, in the world wide web (Internet), enabling an alternative regulation of cyberspace, since the individual becomes active in determining which contents can be linked to its characteristics. It is important to point out that the right to privacy and, especially, to be forgotten, when linked and debated, still represent a great discussion in the field of law, which is moving at a slow pace towards the proper regulation of the limits and extensions of its applicability.

The jurisprudence seeks to address the issue, in order to outline the parameters of applicability of such rights, imposing an analysis of the content and public relevance, in order to delimit their use. Therefore, when the information is linked to the public interest, the right to be forgotten must be set aside, according to the decisions handed down in the courts.

The most important conclusion in the research is that the right to be forgotten has already been protecting the private life of the population, but it cannot be applied in an excessive and pretentious way, especially when the objective is to hide facts of life that are already public and do not demonstrate a vexatious situation that burdens the privacy or dignity of the human person.

Thus, the right to privacy and to be forgotten must be analyzed in detail, to avoid possible outbreak of mistaken attitudes, that is, protecting information and informational content that does not need protection or that requires public and notorious knowledge, or even cases of disclosure of information that does not taint the other rights of personality.

4.8 Limitations of the research study

We are aware of the limitations of the study, since many areas of knowledge of the different sciences have not been studied. However, the Digital Society, whether it is at its infancy and the existing legislation or not, is still very incipient to *guarantee the truth and justice* of people's human dignity, as well as peace and their social and economic well-being.

4.9 Clues to Further Investigations

Norms and laws are drafted by experts in forensic sciences and as such it cannot be the same specialists who use the legal techniques of judicial systems, so it needs to be evaluated by citizens and/or their legal representatives, who are involved in it. From now on, we are asked the following questions:

1. What is the best model for the management of each country's judicial system?
2. How satisfied are citizens with the country's judicial system?
3. How much does the country's court system cost?
4. What is the best model for organizing the country's judicial system?
5. What is the role of defence and prosecution lawyers in court proceedings?

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KEY TERMS AND DEFINITIONS

Information: The information is the result of the addition to the data, a specific pattern of relationships that establish its format. Act on information is not only act on the data, but also act on relations that are established, i.e. on the collective or individual formatting standards and through them on the perception of the real and the action that follows.

Information science: the information science is a recent science and as such inspired in various sciences, having been heavily influenced by the empirical Sciences and as such wanted to establish universal laws that represent the informational phenomenon, hence the recurrence of several models, such as mathematicians (mechanical information theory of Shannon) and physicists (Entropy).

Interdisciplinary - the interdisciplinary can be understood as the "dialogue between the areas of knowledge" in the words of Japiassu (1976), or "mutual ownership of methodologies, principles, theories, concepts and constructs among two or more areas of knowledge (Pinheiro, 2004). Klein (2004) says that the concept of interdisciplinary is linked to that of complexity. The convergence between these two ideas has significant consequences for understanding the nature of knowledge, the solution of scientific problems and dialogue between the sciences and the humanities.

Knowledge: William G. Zikmund [3] (2000, p. 19) defines knowledge as "a mixture of information, experience and understanding which provide a structure that can be applied in the evaluation of new information or new situations". The information "feeds" the knowledge. Knowledge can thus be defined as the ability of a person to relate complex information structures to a new context. New contexts require change-action, dynamism.

Scientific field of information science: The information science can be addressed with a lot of property under the structural and functional point of view, but under the epistemological Prism, this task becomes complicated by fostering a deep analysis of the aspects in which the area is rooted, and it allows a concurrent discussion with other areas of knowledge, about the nature and validity of human knowledge

(a) **Key Terms and Definitions**

(b) **Universal Declaration of Human Rights Preamble**

Taking into consideration:

- That recognition of the inherent dignity and equal and inalienable rights of all members of the human family is the basis of freedom, justice and peace in the world,

- That disregard and contempt for human rights has resulted in barbaric acts that outraged the conscience of mankind and the advent of a world in which human beings enjoy freedom of speech, belief, and will from fear and fear, has been proclaimed as the highest aspiration of the common people,

- Whereas it is essential, if man is not to be forced to resort to rebellion against tyranny and oppression as a last resort, that human rights be protected by the rule of law,

- That it is essential to promote the development of friendly relations among nations,

- Whereas the peoples of the United Nations have reaffirmed, in the Charter, their faith in fundamental human rights, in the dignity and worth of the human person and in equal rights between men and women, and have determined to promote social progress and better living standards in greater freedom,

- Whereas Member States have undertaken to achieve, in cooperation with the United Nations, the promotion of universal respect for and observance of human rights and fundamental freedoms,

- That a common understanding of these rights and freedoms is of the utmost importance for the full realisation of this promise,

The General Assembly of the United Nations (UN), on December 10, 1948, proclaimed the Universal Declaration of Human Rights to be a common standard of achievement for all peoples and all nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms and through progressive measures, to ensure universal and effective recognition and observance. , both among the peoples of the Member States themselves and between the peoples of the territories under their jurisdiction.

Article I: All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and must act against one another in a spirit of brotherhood.

Everyone has the right to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. In addition, no distinction will be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether independent, trustworthy, non-self-governing or under any other limitation of sovereignty.

Article 3 Everyone has the right to life, liberty and security of persons.

No one shall be detained in slavery or servitude; slavery and the slave trade shall be prohibited in all their forms.

Article 5 – No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment.

Article 6 – Everyone has the right to recognize everyone as a person before the law.

Article 7 – Everyone is equal before the law and has the right, without any discrimination, to equal protection of the law. Everyone has the right to equal protection against any discrimination in violation of this Declaration and against any incitement to such discrimination.

Article 8 – Everyone has the right to an effective remedy by the competent national courts for acts that violate the fundamental rights conferred on them by the Constitution or by law.

Article 9 – No one shall be subject to arbitrary arrest, detention or exile.

Everyone has the right to a fair and public hearing by an independent and impartial tribunal in determining his rights and obligations and any criminal charges against him.

Article 11 – All persons accused of a criminal crime have the right to be considered innocent until proven guilty, in accordance with the law, in a public trial in which he has had all the guarantees necessary for his defense.

1. No one shall be found guilty of any criminal offence for any act or omission which would not constitute a criminal offence under national or international law when it was committed. Nor will a heavier penalty be imposed than that applicable when the criminal offence was committed.

Article 12 – No one shall be subject to arbitrary interference with his privacy, family, home or correspondence, nor to attacks on his honor and reputation. Everyone has the right to the protection of the law against such interference or attack.

Article 13 – **Everyone** has the right to freedom of movement and residence within the borders of each State.

1. Everyone has the right to leave any country, including their own, and to return to their country.

Article 14 – Everyone has the right to seek and enjoy asylum from persecution in other countries.

1. This right cannot be invoked in the case of prosecutions genuinely arising from non-political crimes or acts contrary to the purposes and principles of the United Nations.

Article 15 – Everyone has the right to a nationality.

1. No one shall be arbitrarily deprived of his nationality or denied the right to change his nationality.

Men and women of full age, without any limitation on account of race, nationality or religion, have the right to marry and to found a family. They have the right to equal rights in relation to marriage, during the marriage and its dissolution.

1. The marriage will only be celebrated with the free and full consent of the spouses who wish to do so.
2. The family is the natural and fundamental group unit of society and is entitled to the protection of society and the state.

Article 17 – Everyone has the right to own property alone as well as in association with others.

1. No one shall be arbitrarily deprived of his property.

Everyone has the right to freedom of thought, conscience and religion; this right includes freedom to change his religion or belief, and freedom, alone or in community with others and in public or private, to manifest his religion or belief in teaching, practice, worship and observance.

Everyone has the right to freedom of expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

Article 20 Everyone has the right to freedom of peaceful assembly and association.

1. No one may be forced to belong to an association.

Everyone has the right to participate in the government of his country, either directly or through freely chosen representatives.

1. Everyone has the right to equal access to public service in their country.
2. The will of the people will be the basis of governmental authority; This will be expressed in periodic and genuine elections which shall be by universal and equal suffrage and shall be held by secret ballot or by equivalent free voting procedures.

Article 22 – Everyone, as a member of society, has the right to social security and has the right to realize, through national effort and international cooperation and in accordance with the organization and resources of each State, the economic, social and cultural rights indispensable to his dignity and to the free development of his personality.

Article 23 Everyone has the right to work, freedom of choice of employment, fair and favourable working conditions and protection against unemployment.

1. Everyone, without any discrimination, has the right to equal pay for equal work.
2. Everyone who works has the right to fair and favourable remuneration, ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection.
3. Everyone has the right to form and join trade unions for the protection of their interests.

Article 24 – Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with remuneration.

Everyone has the right to a standard of living adequate to the health and well-being of himself and his family, including food, clothing, housing and necessary medical

care and social services, as well as the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of subsistence in circumstances beyond his control.

1. Maternity and childhood have the right to special care and assistance. All children, whether born in or out of wedlock, enjoy the same social protection.

Article 26 – Everyone has the right to education. Education should be free, at least in the elementary and fundamental phases. Elementary education is compulsory. Technical and vocational education will generally be made available and higher education will be equally accessible to all on the basis of merit.

1. Education must be geared towards the full development of the human personality and the strengthening of respect for human rights and fundamental freedoms. It will promote understanding, tolerance and friendship among all nations, racial or religious groups, and promote the activities of the United Nations for the maintenance of peace.

2. Parents have the prior right to choose the type of education that should be given to their children.

Everyone has the right to participate freely in the cultural life of the community, to enjoy the arts and to share in scientific progress and its benefits.

1. Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he or she is the author.

Everyone has the right to a social and international order in which the rights and freedoms set forth in this Declaration can be fully realized.

Article 29 : Everyone has a duty to the community in which only the free and complete development of his personality is possible.

1. In the exercise of their rights and freedoms, everyone shall be subject only to limitations determined by law solely for the purpose of ensuring due recognition and respect for the rights and freedoms of others and of satisfying the just requirements of morality, public order and general welfare in a democratic society.

2. These rights and freedoms may in no case be exercised in a manner contrary to the purposes and principles of the United Nations.

Article 30 – Nothing in this Declaration shall be construed as implying to any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights and freedoms set forth herein.