Information management as cross-sectional and interdisciplinary area

Different perspectives and strategic importance of "informational typology"

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The practical epistemology as designated by Jayme Paviani to signify articulation of epistemological and methodological problems within a common horizon and, thus, its function would be "to make explicit the assumptions and the purpose of science in union with research rules, procedures and instruments. Therefore, its contribution, besides being reflective, is programmatic"(Paviani 2009: 21), and has underlied the effort of the University of Porto, Portugal, the precise delimitation and synthetic (uniting theoretical concerns of the scale research practice) field of Information Science (IS). So the definition in use: "Social science which investigates the problems, issues and cases related to the info-communicational phenomenon, perceptible and knowable through confirmation or denial of inherent properties to the genesis of the flow, informational organization and behavior"(Silva, 2006, p. 141). It is also the science that, keeping alive the documentary and practical tradition which it inherits from previous subjects as librarianship, documentation and archiving, studies the informational cycle in its fullness and transversality: origin, collection, organization, storage, retrieval, interpretation, transmission, processing and use of information.

And how is information defined? It has been defined in various ways and views. In the midst of such a variety of settings, we chose to adopt a definition which

explores the attached object operatively: "Structured set of mental and emotional representations which are coded (signs and symbols) and modeled with/for social interaction, which may be registered in any material support and, therefore, communicated in an asynchronous and multidirectional way "(Silva, 2006: 150).

In order to be communicated, the information takes the form of the document, but it is not identical with it, though our senses (visual and tactile) allow us to see the document as an inseparable artifact (and symbiotic) of the mentifact (information). Perceiving the subtle but crucial difference between the content and the container, between the support and the "substance of meaning"registered on it, creates epistemic legitimacy to the IS.

Since the 1860´s (GIT, 1961-62; Harold Borko, 1968) and, later, in the 1890´s (Yves Le Coadic, 1994), the definition of IS has included, punctually, the reference to the properties. In the exposed definition, in use of the University of Porto, they appear and, especially, they were listed in a book which was prepared to serve as a Theoretical and fundamental background to the Degree in Information Science which began to be taught in the 2001-2002 academic year (SILVA; RIBEIRO, 2002). They are six: structuring by the action; dynamic integration; prägnanz (pregnancy); quantification; reproduction and transferability. And the properties are somehow intrinsic and "universal"characteristics of the info-communicational phenomenon. And it is in this relation to this human and social phenomenon that the object of IS (defined above) is (re)constructed.

The "steps" of the info-communication cycle/process (object of study or construct), listed above, form the object of IS and can be divided into three large specialized "study" groups or areas: the production of informational flow, the organization and representation of information, and the informational behavior (Silva, 2006). This tripartite division of the object of IS began with an ambiguity that was being addressed and resolved first, and clung to the inclusion of information management. The connection of this topic, call it for now, so the trans-and interdisciplinary IS, developed in Porto, never offered questions, especially as to be deep and even radically rethought and reworked the formative model, molded in specialization courses in Information Science, who remained from 1982 to 2001 and lasted, with some technicalities reinvigoration, the vocation of the classic course Librarian – Archivist, taught at the University of Coimbra (1935-1981), to enable librarians and archivists for their respective public cultural institutions, aimed at creating a new hybrid professional, working symbiosis of social scientific

technological matrix, if inflection – clearly, in affirming the manager of information as a professional future that is increasingly present. The doubts and difficulties were not, therefore, in the professional dimension, but in the epistemological framework. And here, the initial response was in order to dilute the information management in the area of information production: this guidance was to "present an image based on epistemological assumptions and conducive to putting the information management alternative or explicit knowledge, such as segment the object of IS, which we conceive of such an epistemological point of view and training in Port. And this perspective arises reflected, in condensed form, entries in Information Management and Knowledge Management DeltCI" (Silva 2009: 233), imposing itself, however, the caveat that on Knowledge Management our position remains unchanged.

In later articles (SILVA, 2005: 89-113 and Silva, 2009: 233-252), the approach has become less simplistic and was refused the idea of identifying, without more, the Information Management as one of the three areas of IS object, associated with the production of informational flow, clearly replaced by a "interdisciplinary topic of Information Management in the optical of Information Science"(Silva 2009: 246), which can be explained in more detail in this way:

> And put the inter-disciplinary relations, with the maturity and the complexity that I can see them today, there seems to be no doubt that the Information Management (IM), as well as the Knowledge Management and ways to more strategic and sectoral employment as Competitive Intelligence (IS) and Economic Intelligence (IE) (Paim, 2003; Tarapanoff 2006, and SANTOS; MILK; FERRARESI, 2007), does not constitute a scientific discipline itself, but a "platform"which is essentially practical of application of ideas, theories, models and several solutions, condensed into multiple different consulting "packages". This means, in plainer terms, that the IM constitutes a topical in removal route of traditional and instrumental vision of Information Technology and Communication (ICT). Indeed, much of the teaching of information management, does not exist or has had a very strong emphasis on coded and stored information in information technology (Rascão, 2008: 14-15). It is urgent, therefore, according to this author, to whom the IM has become, for better or for worse, an academic discipline (this does not mean that it is, naturally, a scientific discipline), to let this traditional view to, alternatively, be constructed a synthesis filled with contributions from Economy, Management, Strategic and Communication Management, which

> indicate other ways of looking at information management. These fields have a less technological vision of information management and make the separation between the encoded, stored and accessed information by means of information and communication technologies, and general information, ie, in broad and comprehensive terms in the process of decision making (Rascão, 2008: 15).
>
> Being the IM (and related variants) a topical which moves towards the dynamic synthesis, it seems to be rooted more clearly in inter-science SI and interdisciplinary field of [Communication Sciences], calling a stronger approach of Applied Social Sciences, epistemic space where IS has to complain with growing strength its belonging and own space (Silva 2009: 235-236).

Clarifying further, to shoot this initial item, it can be said that IM entirely corresponds to the nature of applied social science with the trans– and interdisciplinary IS is defined and presented, ie, it consists, thus, in the applicational dimension of the IS, crossing all areas of the field of study of this science and it is also composed of other different scientific-technical approaches, but complementary and enriching.

As it is evident for us that an information manager must have a background in IS, because this is the training model followed at the University of Porto, his or her professional development and expertise in science and technology plan require aggregating skills through deepening of other disciplines and knowledge such as Sociology of Organizations, Economy and Management, Strategic Management, Business Development, Information Systems and IT Management, for all of them, and others, find themselves intertwined in the complex and dynamic activity of IM.

The basis for a debate on different perspectives

Previously clarified how the IM is configured epistemologically in the IS matrix, in evolution, we are now in a position to examine in some detail, not only the need of the pair "information management – knowledge management", but also how it has been handled in the available literature, consisting of texts by authors from IS and the vast and diverse Management area.

Rehearsing a rating, which is always risky, because it can be either too general, leaving "specimens" from the outside, as too particularistic to lose flexibility and

breadth, we will say that lie three perspectives that influence, albeit in different ways, how we can address this issue:

1) "Management of organizational knowledge/consultancy", strongly influenced by literature in management consulting, which, in turn, owes the distinction between tacit and explicit knowledge, initiated by Michael Polanyi (1891-1976), scientist and philosopher of science of Hungarian and Jewish origin (brother of Karl Polanyi, an important mentor of Economic Sociology) and appropriate, among others, by Nonaka Ikujiro and Hirotaka Takeuchi (Nonaka and Takeuchi, 1997);

2) "Phenomenological and informational", by Tom Wilson;

3) "Cognitivist, Info-comunicational and systemic"(Silva and Ribeiro).

The first perspective accepts the conceptual difference between data, information and knowledge, dividing this still in tacit and explicit, and it has as inspiring source commonly recognized, the work of Michael Polanyi, in terms of the definition of tacit knowledge and its distinction regarding the explicit. With the backing of Polanyi, tacit knowledge is understood as "that which the individual acquired throughout life by experience. It is usually difficult to be formalized or explained to other person, because it is subjective and inherent to abilities of a person. The word "tacit" comes from Latin *tacitus* which means "be silent, silent", applying to something that can not or does not need to be spoken or expressed in words. It is implied or implicit"(Wikipedia). And the same source acknowledges that Polanyi is one of the theoretical references for the notion of tacit knowledge, in that it "helped deepen the contribution of tacit knowledge to the genesis of a new social and scientific understanding of the research. This author also studied its relevance to educators"(Wikipedia). In the book he published in 1966, titled *The Tacit Dimension*, Polanyi left expressed as follows:

> [tacit knowledge is] spontaneous, intuitive, experimental, everyday knowledge, the type disclosed by the child who makes a good game of basketball, (...) or play complicated rhythms on the drum, despite not knowing how to do basic arithmetic. As a person who knows how to make bucks, but do not know how to add numbers. If the teacher wants to become familiar with this kind of knowledge, he or she has to watch it, to be curious, to hear it, amaze himself or herself, and act as a kind of detective who seeks to uncover the reasons why the children to say certain things. This kind of teacher strives to meet the students and understand their own process knowledge, helping them to articulate their knowledge-in-action with the school

> knowledge. This type of education is a form of reflection-in-action that requires the teacher the capacity of individualize, ie, to watch one student, even in a class of thirty, having a sense of his or her level of understanding and difficulties (Polanyi, 1966:82, quoted by Wikipedia).

This notion became quickly applied to education as valuable aid for teachers, calling their attention to a type of "knowledge" which is subjective, not measurable, nor written, almost impossible to be formally taught, valuable because difficult to capture, to register and to disclose, once "it linked to the individual." And more one reads the entry we are following from Wikipedia, translating, moreover, the view which became widespread in the literature and in the *milieu* of professional and consulting management:

> We can say that we all possess this knowledge, but it is hard to explain it and this is due to our experience of life, the knowledge we have acquired over the years, that is, knowledge that is within us. Possibly the best way to convey it is through oral communication, in direct contact with people, coexistence and interactions with the groups that we participated.
> Tacit knowledge is opposed to knowledge which is explicit, systematized, which can be formalized in texts, drawings, diagrams, etc.. or stored in databases or publications. The word explicit comes from the Latin *explicitus*, past participle of *explicáre* and it means "explained, declared". Tacit and explicit knowledge interact and complement each other (Wikipedia).

A more developed and accurate analysis of the theory proposed by Polanyi appears in the study of Rosa Maria Quadros Nehmy and Isis Paim. The authors explain in details the aspects of the theory, enfasizing the central point that "Polanyi was concerned to develop a theory that denounced the contempt or attempting to ignore the personal component in the production of scientific knowledge typical of modern science"(NEHMY; Paim 2003: 285) and that the appropriation of the concept of tacit knowledge for knowledge management has distorted the original and integral meaning present in Polanyi's argument:

> The explanation of 'tacit knowledge' does not appear as goal or objective to be achieved. In contrast, the tacit component is in its nature an inaccessible process.

> Even though elements of tacit component can be expressed in descriptive language, the set, the form of such knowledge, remains impervious to language. (...)
> There is not a reference to an explicit knowledge as considered by knowledge management. Tacit and explicit knowledge are not even complementary in the sense that there is not a continuous line (or a scale) so that there is more or less tacit or implicit knowledge. (...)
> For the author, the science is the result of personal emotions and passions of scientists underlying faith in scientific formulations. Passion for the beauty of science is the engine for the production of knowledge. So it rebels against attempts to imprison it utilitarian interests. Fears that science has to submit to the utilitarian demands and lose the values that assign it the freedom to exist by itself, by its aesthetic values.
> This position of Michael Polanyi collides head-on with the propositions of knowledge management. (...) In deviation from the theoretical significance of the term in Polanyi, the notion of tacit knowledge becomes itself tacit. The type of argument used for the definition of tacit knowledge in knowledge management is the opposition between, at one extreme pole, tacit knowledge, and at the other, the explicit knowledge. In this movement, we consider each of the terms of the definition as two types of absolute knowledge that are defined by the opposition: tacit is what is not explicit and the inverse (NEHMY; Paim, 2003: 287-288).

In addition to what was "indoctrinated" by Polanyi, literature adds, generally, the Japanese Nonaka and Takeuchi, associated with a concession that was easily assimilated by managers and management trainers: organizations receive knowledge and information from the environment, adapt and create, from the inside out, new knowledge and information, recreating the respective environment. These authors believe that

> Through the capture of information and knowledge from the external environment process, organizations seek to identify any leads or new idea that would boost their business. This process occurs through organizational interaction with various stakeholders (government, competitors, suppliers, customers, distributors). After collecting information and external knowledge, both are absorbed, incorporated and appropriate to the organizational environment. (SCHONS; COSTA, 2008)

Still following the scoresheet made by Cláudio Henrique Schons and Marilia Costa Damiani, Nonaka and Takeuchi comment that the skills and lessons learned drawn from the external environment, are modified, enriched and translated in order to fit the identity and self-image of the organization:

> In other words, the information collected externally is adapted so as to guide the organization strategically, directing it into effective actions.
> In the domestic environment, the creation of new knowledge occurs from an intensive and laborious interactive process among members of the organization through formal and informal communication, represented, for example, through meetings, discussions, seminars, among others. Therefore, the flow of information and knowledge involving internal and external environment enables new knowledge to be created, and consequently the organization to innovate and become differentiated in the market.
> In this sense, the innovation process is moved through the conversion that occurs from outside to inside the organization and out again through new products, services or systems.
> According to Nonaka and Takeuchi (1997) is internal and external interactivity that allows the creation of new knowledge, supporting continuous innovation in the organization and consequently its competitive advantage (Figure 1).

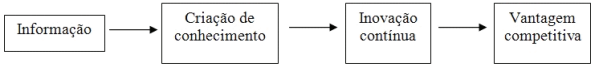

Figure 1: Knowledge as a competitive advantage (SCHONS; COSTA, 2008).
Information knowledge creation continuous innovation competitive advantage
Source: Adapted from Nonaka and Takeuchi (1997, p 5.) Apud Schons and Costa 2008

That is, therefore, the foundation basis of what substantiates the perspective called "Conventional and Consulting Management", which was assimilated without hesitation or the minimum critical requirement for information technology management, which can also mix this contribution with the mechanistic approach of information, due to the mathematical theory of communication by Shannon and Weaver (1949). So it was and remains enshrined the famous triad: data, information and knowledge.

Pedro Luiz Cortes condenses all that has been said and repeated regarding this matter in his manual on *Information Systems Management*. An item entitled "defining data, information, knowledge and wisdom," begins by warning that

> it is possible to check – albeit in an introductory way – that **data** and **information** may not be the same thing (and really they are not), since – according to the definition adopted – the **information** is obtained from **data** processing. Thus, it is possible to assume a hierarchy, with **information** being in a higher level to that occupied by **data**.
> It is likely, at first, this may cause some confusion, since, in general, the terms **data** and **information** are taken as synonyms, without major problems. Even so, it is necessary a distinction between these terms, which will be the key to understanding how knowledge, intelligence and wisdom develop (CÔRTES, 2010, p. 26).

Following the express purpose, Pedro Côrtes presents data as "sequences of fruit facts, which were not organized, processed, related, evaluated or interpreted, representing only isolated parts of events, situations, or occurrences" and thus are "basic units, from which information can be produced or obtained" (Cortês, 2010, p. 26). On the other hand, information occurs

> When data undergo some kind of relationship, evaluation, interpretation or organization, there is the generation of information. From the moment data is transformed into information, decisions can be made.
> It should be emphasized, however, that the quality of these decisions will depend on the quantity and quality of available data and the relationship made. The same set of data, when processed by different systems, may generate **qualitatively** different information (Cortês, 2010: 26).

To these essential notions the author also added the notion of metadata, defined, according to Ikematu, and, among several possible definitions, such as "data associated with objects that helps potential users to take full advantage of the knowledge of their existence or characteristics"(Côrtes, 2010: 31). To generate knowledge, properly structured and related data and information are required. The author, using an analogy, refers that if data is a brick, information is a wall made up of several bricks, and hence "knowledge is one or more rooms constructed from the

organization and proper relationship of various walls "(Côrtes, 2010: 41). And rising the scale comes the concept of intelligence, for which it is first raised the contribution of psychology, but in the end the sense of collective intelligence prevails, designed by Pierre Levy (Levy, 1997):

The importance of the group and as an individual interacts with it, supplying social environment with information and for it being supplied, providing and obtaining opinions, reporting and knowing different experiences, allows to infer – at least initially – the possible existence of a collective intelligence as a substrate capable of promoting the development of individual skills (Côrtes, 2010: 42).

At the apex of the pyramid is the wisdom regarded as the upper stage,

> in which intelligence available about a particular subject is extended, occurring the generation of additional knowledge by selective accumulation of additional information that are crossed, interconnected and complemented by the accumulated experience. Decisions are taken with a reduced possibility of error, because the perception of the whole and the accumulated experience make various alternatives are considered with their possibilities of error and accuracy (Cortés, 2010: 44).

The cited author offers a contribution situated, more clearly, on the side of computer management and, hence, we can reset the agenda that matters most here, marked by the Management and the IS, and, with Marta Lígia Pomim Valentim, worth following differentiation between information and knowledge that will be rebated later both in the perspective of Tom Wilson, as in Armando Malheiro da Silva and Fernanda Ribeiro. According to Marta Lígia Pomim Valentim:

> Information can be considered object, because it is from explicit information on some support, that we envision knowledge built by an individual or group of individuals. A report can only exist from the explicit knowledge of someone or a group. On the other hand, information may also be a phenomenon, i.e., the individual or group that prepared the report needed to perform a variable cognitive process, after making various individual and collective cognitive actions, for instance, relate, isolate, associate, disassociate, analyze and synthesize, getting to the end of the process explicit knowledge, in a report format.
>
> As a phenomenon, information can be emancipatory, since from it, the knowing subject or group of knowing subjects can perform the cognitive process individually

> or collectively, with better security, confidence and peace of mind. Making sure that at the end of the process, explicit knowledge in a report format has reliable and consistent content. Still, as a phenomenon, information can provide conditions of power, subjugation and difference, as the knowing subject or group of knowing subjects who possess relevant information may make more efficient cognitive processes than other individuals or groups of knowing subjects who does not have relevant information to their scope/disposal (VALENTIM, 2008: 20-21).

Interestingly, the positioning of Martha L.P. Valentim, professor at UNESP of Marília, in the area of Information Science, articulates perfectly with the "cognitive" approach, so designated with a clear lightly, by Bertram Brookes, author of a formula that was getting a broad and benevolent host, although still lacking a rigorous critical examination:

$$K(S) + \delta K = K\,(S + \delta S)$$
$$\delta I$$

Translated in natural words, the formula means that a state of knowledge K(S) passes into a new state of knowledge K(S+δS), through an increase in knowledge δK, extracted from an increase of information δI, indicating δS the effect of this modification in the initial state of knowledge. We will see below that the "infocomunicational and systemic" perspective rejects the simplicity and reductionism of this formula, but there is no doubt that it is in line with the "doctrine" accepted in the intricacies of Management consultancy.

This confirms what has just been stated, if we stop at certain readings. Reading the study of Helena Crivellari, we find, for example, this extract:

> In *The economy of knowledge*, Dominique Foray (2000: 10) makes a clear distinction between knowledge and information. For him, knowledge is more than information, to be able to extrapolate given prior knowledge and from it infer new information and new knowledge. Foray shows that knowledge can be encoded, which means lowered – to information – and converted to message to be transmitted from one person to another, or to be stored. The coding of information creates then an ambivalent 'good', having certain properties of information: becomes commoditised,

> manageable, but also becomes a 'public good', which implies the need for protection and subjection to the legislation on intellectual property (CRIVELLARI, 2003: 249).

And if we proceed by other "spaces for reading", we can reap, in one of the famous "gurus"of management, Peter Drucker, the visionary idea, launched in the 60s, that the global economy would be sustained by knowledge, transforming the market organizations in "generating of knowledge bodies". From a text inserted in the book *The Essential of Drucker* is worth highlighting the following:

> By itself, the specialized knowledge does not produce any performance. The surgeon is only effective if there is a diagnosis and it is not even the competence of the surgeon. Those who carry out market studies, alone, only produce data. To convert the data into information, the more make them effective in knowledge action, people associated with marketing, production and assistance are needed. As a solo in his research and writing, a historian can be very effective. But to generate the instruction of students, many other experts have to contribute – people whose expertise can be Literature, Mathematics or other areas of History. This requires that the expert has access to an organization (DRUCKER, 2008: 334).

Anthony de Pádua Araújo and Lindolfo Galvão de Albuquerque relied on Drucker and presented Nonaka and Takeuchi as formulators of the theory of the creation of organizational knowledge, theory which lies in the distinction between tacit and explicit knowledge and the in the assumption that "human knowledge is created and diffused through the "knowledge conversion", which is the social interaction between tacit and explicit knowledge" (ARAÚJO; ALBUQUERQUE, 2010, p. 53-54). And this "knowledge conversion" was designed with four ways: socialization, externalization, combination and internalization. Socialization is a process of sharing experiences and assumes that tacit knowledge becomes a new knowledge, which is also tacit: "A person can acquire tacit knowledge directly to another without making use of language, as in the case of learners who learn from their masters through observation, imitation and practice. The secret to knowledge acquisition is experience" (ARAÚJO; ALBUQUERQUE, 2010: 54). Outsourcing is a process by which tacit knowledge becomes explicit, express "usually in the form of concepts, metaphors, analogies, hypotheses or models" (ARAÚJO; ALBUQUERQUE, 2010 p. 54). The combination consists of explicit knowledge generate another knowledge, also explicit. And

the internalisation "presupposes the incorporation of explicit knowledge to tacit knowledge – the "learning by doing". It occurs through verbalization, systematization and documentation of knowledge in the form of projects, manuals, personal stories, iconographic records, among others" (ARAÚJO; ALBUQUERQUE, 2010: 54).

The model of Nonaka and Takeuchi became almost a dogmatic that the vast supporting literature produced by managers and consultants, reproduces and spreads. So did Luiz Filipe Quel, in a small book published by Saraiva (QUEL, 2006); so did Joseph Poças Rascão in a work of greater scope, broader and interesting theoretical reasoning and intelligently structured, putting the emphasis on information management (RASCÃO, 2008); and it is accepted and explained in the opening chapter of the collective work on business management in the knowledge on (SILVA; NEVES, 2003). Finally, a very brief "stroke" over a dominant trait of the perspective we have been characterized and, to close, passing to the next, starred by Tom Wilson, it must be summoned three consultants from McKinsey & Company, German, who developed, during two years and encompassing forty companies in the United States of America, Europe and Japan, a study, for the Company, which sought to know what extent the management teams of these companies are able to use the knowledge they have on offer, to improve its overall performance. They departed for that, from a "broader perspective" of knowledge management, i.e., while the information is just a number, knowledge is the ability to relate this and other numbers, to understand the meaning of information, relating it to other information, analyze and extract interpretive results of the selective, analytical and critical examination:

> Managing knowledge is to be able to understand these relationships – either to improve products, processes or the relationship with customers – to increase profitability.
> In a more formal definition of knowledge, we would say the following:
> "Knowledge consists in understanding the relations and causalities, so it is key to make the operations effective, develop business processes or predict the outcomes of business models"
> Our brief definition of "management" also helps to clarify the confusion that sometimes exists around this issue:
> "The management is the conscious and systematic decision on how best to use scarce resources in an uncertain environment to achieve lasting improvements in the performance of an organization". (...)

> Most of the work that is done on knowledge management discusses thoroughly the distinction between explicit knowledge (can be structured and documented) and tacit knowledge (related to the senses and experience). This can be a practical way of looking at things, but the situation is, actually, far more complex. The two categories are so strongly intertwined that in practice it is not possible to separate them easily. For example, to fully understand a written document (explicit knowledge) is required, sometimes, extensive experience (tacit knowledge): a sophisticated recipe may have no meaning for a person who has never had to cook; a text on laws can be totally incomprehensible to those who have no training and practice in this area (KLUGE; STEIN; LICHT 2002: 14-15).

Hold back, for now, a very interesting aspect: the German authors, without considering the approach of "organizational knowledge management/consultancy", where we insert them, consider the categorization in tacit and explicit knowledge, simplistic and reductive, emphasizing that they are "highly interconnected". They also emphasize that knowledge presupposes the ability to (re)connect and understand, what makes implicit a strong remitting for the importance in this process of the capabilities/faculties (cognitive and emotional) of the brain and mind. An obvious opening to the third perspective to address this item.

Consider, however, the second, which we term "phenomenological and informationalist", mirroring the educational and professional profile of the librarian and professor emeritus at the University of Sheffield, UK, Tom Wilson, full name Thomas Daniel Wilson (3), editor of the electronic journal *Information Research* (4) and important mentor and cultivator of researches, since the 70s of last century, in information management and information behavior. A perspective drawn, clearly, in an article precisely published in this journal in 2002, with the suggestive title *The nonsense of the 'knowledge management'* (WILSON, 2002) and with the clear purpose to critically examine the origins and basis or grounds of the management knowledge, its components and its development as a field of consultancy practice, exploring issues present in the distinction between information and knowledge as well as the design before exposed and analyzed, by Michael Polanyi, showing how it was being taken the concept of tacit knowledge in journals, in websites of consulting companies and in programs of business schools.

Point of relief, that comes after a very brief introduction, it is precisely the distinction between knowledge and information, a distinction that Wilson considers

very important for information scientists and specialists in information systems. He adds that it is not a very difficult task and, once made, is more immediately visible the "absurdity" of the term "knowledge management".

According to Tom Wilson, "knowledge" is defined as what we know: knowledge involves the mental processes of comprehension, understanding and learning that goes on in the mind and only in the mind, however involve interaction with the world outside the mind, and interaction with others. Whenever we want to express what we know, we can only do so by uttering messages of one form or another – oral, written, graphic, gestural or even through 'body language'. Such messages do not carry 'knowledge', they constitute 'information', which is what the mind can learn to assimilate, understand, comprehend and incorporate into its structures of own knowledge. These structures are not identical neither to the person who sends the message, nor to the receiver, because the knowledge structures of each person are, as Schutz (1967) noted, "biographically determined". Therefore, the knowledge built from the messages, may not be exactly the same as the knowledge base from which the messages were delivered (WILSON, 2002).

It appears that, in common usage, the two terms are often used as synonyms, but the task of the academic researcher should be to clarify the use of terms, so that the field of research has a clearly defined vocabulary. The current confusion about "knowledge management" perfectly illustrates this need. And in this sense, the conclusion to Wilson is simple: everything that comes out of the mind can be in the form of data, when they result of simple facts, and information, when the data are embedded in a relevant context to the recipient, and we still encounter "collections of messages", composed in various ways, and they may be regarded as "information resources" of various kinds (collections of articles in a journal, emails in an electronic "folder", handwritten letters in a file, etc.). Data, information and information resources can, because they are outside the mind of the subject, be managed, but knowledge itself ("what we know") can never be managed, except by the knowing subject, and even then, on an imperfect way, since, in fact, we show very little control over what we know (WILSON, 2002).

Put it this way, Wilson embraces another essential point within the strategy adopted: what is knowledge management? The path to an answer was followed by research in the three citation indexes of *Web of Science*, between 1981 and 2002, with a focus on articles with the term "knowledge management" in the title. And the interesting result: from 1986 to 1996, there were very few occurrences, but between

1997 and 2002, growth was exponential, and seems to have been a slowdown in the latter date. When we look in more detail for the first period (1986-1996), it appears there is a wide range of subjects treated under the said expression or topic: the head, appears with seven articles "the systems of artificial intelligence and expert systems", then come four papers on general aspects of computer science, three over decision support, two regarding information technology systems in general, and finally, several subjects (three papers), information technology in general (two papers) and various subjects (eg, databases, scan, geographic information systems and human-computer interaction – four papers), totaling, all things considered, 61% of the papers:

When we look in more detail at the items in the first eleven years (1986-1996) we find a very wide range of subjects represented under the heading 'knowledge management'. Two items were simply editorials in journals – when these are removed we are left with thirty-three papers, the largest single category of which deal with artificial intelligence and expert systems (seven papers), followed by general aspects of computing (four papers), decision support systems (three papers) information technology in general (two papers) and miscellaneous subjects (i.e., databases, digitisation, geographical information systems, and human-computer interaction – four papers) Taking these together as dealing with computing and its applications, we have 61% of the papers. (original de Wilson)

> Apart from these computing topics we have education, the human genome project, information policy, information management, organizational structure, product development, terminology, and a variety of other subjects. Clearly, however, before the surge in publication in 1997, 'knowledge management' meant some application or other of computers, with the influence stemming from the notion of 'knowledge bases' in the expert systems field. The analysis also suggests that, from the beginning, there has been confusion over what the term meant, since few of these papers bother to define the term.
>
> This focus on technology appears to persist: I downloaded 158 references from the *Web of Science* for 1999 to 2001 into *EndNote* and then searched the abstracts for specific terms: without taking account of double counting, 'information technology', 'technology' and 'software' occurred a total of 66 times, while 'information sharing', 'communities of practice' and 'knowledge sharing' occurred a total of only 10 times. To determine the current nature of 'knowledge management' in more detail, I searched the *Web of Science* again (all three citation indexes) for papers published in

2001 with the phrase 'knowledge management' in the record. Excluding abstracts of papers, this produced 242 items, distributed over 106 journals. On a relatively crude classification, the 106 journals were distributed across 26 subject fields, with six fields having more than three journal titles. This suggests that the concept (although interpreted in different ways in different fields) is widely distributed across fields of practice (WILSON, 2002).

It is important to systematize, in a table, the research done by Tom Wilson:

SUBJECT AREA	Nº
Computing & Information systems	26
Information Science, Information Management & Librarianship	18
Management	13
Artificial Intelligence	10
Engineering	8
Medicine	4
JOURNAL TITLE	Nº
Decision Support Systems	12
Journal of Information management Systems	10
Wirtschaftsinformatik	10
European Journal of Information Systems	9
Expert Systems with Applications	9
Nfd Information Wissenschaft Und Praxis	8
IBM Systems Journal	7
Journal of Strategic Information Systems	7
Journal of Management Studies	6
Journal of the American Medical Informatics Association	5

Source: Wilson, 2002.

Analyzing the articles published in selected journals, we see that Wilson's objective was to detect the common among them about knowledge management. And the author, whose research we expose and summarize, does it is within each publication, of the ten chosen, finding something meaningful:

> A number of points arise out of this analysis: first, it is curious that the vast majority of papers are in special issues of journals and that, in some cases, no other paper has been published on this topic in the same journal since 2001. This suggests that the topic has not entered the normal stream of papers in these journals using the same terminology – although papers on the same subjects – expert systems, decision making, decision support systems, etc., – have continued to be published. The second point reflects the first: there is absolutely no agreement on what constitutes 'knowledge management' and, in the case of the special issues there is a suspicion that the papers have adopted this terminology simply to be published in that issue. Thirdly, those papers that seriously address the question of whether knowledge can be managed generally conclude that it cannot and that the topic breaks down into the management of information and the management of work practices (WILSON, 2002).

Applying, then, the same exercise to several consulting firms, given that knowledge management was, in its origin, a movement driven by management consultancies, and beginning with one of the "founding fathers"of the idea – perhaps founding father – Karl Erik Sveiby, who wrote the first book on the subject in 1990, under the Swedish title 'Kunskapledning' (Sveiby, 1990), extended it to *Accenture* Consultant, *Cap Gemini Ernst and Young*, *Deloitte and Touch*, *Ernst & Young*, *KPMG Consulting*, *McKinsey & Company* and *PricewaterhouseCoopers*, concluding:

> The conclusion to this brief exploration of consultancy Web sites is that 'knowledge management' means different things to different companies and that one or two of them that have previously dabbled with the idea have moved on to other things.
> Some of the consultancies covered claim that companies are flocking to them to discover the joys of 'knowledge management'. However, since 1993, Bain and Company have been tracking the use of various management tools and according to their latest survey covering the year 2000 (Bain & Company, 2001) only about 35% of their world-wide sample of 451 companies was using 'knowledge management',

> reporting a satisfaction rating of about 3.5 on a five-point scale. The usage figure puts 'knowledge management' in 19th position, out of 25 management tools. This compares with about 70% using benchmarking, and almost 80% using strategic planning. The Bain survey suggests that the flood may be more of a trickle (WILSON, 2002).

In addition to the journals and consulting firms, projected on their websites, Wilson "peeked" even business schools, more precisely their courses in knowledge management, having not been difficult to find patents difficulties of definition and distinction about this operational concept. In Stuart Graduate School of Business of the Illinois Institute of Technology, knowledge management is equivalent to or synonymous with specialized systems, on support to decisions and related software technologies. At George Mason University School of Management, knowledge management integrates information management systems and systems that manage the flow of information. At the University of Kentucky 's Gattan College of Business and Economics, the concept in focus is set as the invention, improvement, integration, use, administration, evaluation and impact of a variety of computer-based techniques, to manage knowledge (ie, represent it and process it) and that have been and will be designed to complement innate management skills of human knowledge. At the McCombs School of Business at the University of Texas at Austin, there is a mix of subjects including business intelligence, knowledge management, and worker's knowledge and productivity, data modeling and group decision support systems. In one of the most prestigious American university, Georgetown University, Washington DC, through its MBA program in Technology and Knowledge Management, emphasizes an orientation towards information systems. And at Harvard Business School, knowledge management is subsumed by "learning organization", as the processes that promote it determine how individuals and organizations create, acquire, interpret, transfer and retain "knowledge". A great rule in the "Learning Process and Knowledge Management" module, with emphasis on experimentation and benchmarking, is to learn from the successes and failures of the past. In London School of Economics, knowledge management is not offered nor at MBA level, or Doctoral level, succeeding the same in the Manchester Business School. Situation that, in essence, was found in the Said Business School in Oxford, Cass Business School, City University, in London and Warwick University Business School. Adding and subtracting the result emphasized by Wilson, the overall impression is that there is a

clear discomfort with the concept, because he has diffused presence in institutional websites as well as the teachers' programs (Wilson, 2002), repeating thus the patented by examining journals.

What emerges from analyzed sources, in many cases, is that knowledge management was being used simply as a synonym for "information management". Strong idea that Tom Wilson further strengthens calling the valuable testimony of David Weinberger: this author cited a conversation of Andy Levin, editor of Knowledge Management, occurred in an event, with a group of people. Then he asked them if, when they used the term knowledge management, they were not simply replacing the concept of marketing. The question rattled the group and the answers were distributed into three groups or types: "1. No, we've added important new features designed to help you with your KM chores; 2. Sort of. We have the same features as always but have discovered new applications for them; 3. Yes, you pathetic loser"(Weinberger cit. WILSON, 2002).

Tom Wilson sought to show that the effect fashion weighed heavily on information exchange for knowledge, because of their (the mentors and actors of this amendment) understanding that, thus, the already existent solutions were "best sold". He continued this same demonstration with other examples: the excellent search business websites, www.brint.com, had a large section devoted to information management, but, in 1999, this "link" crashed; and on the World Bank website has been disclosed a document of Stephen Denning, which stated:

> Thus organizations with operations and employees around the world are now able to mobilize their expertise from whatever origin to apply rapidly to new situations. As a result, clients are coming to expect from global organizations, not merely the know-how of the particular team that has been assigned to the task, but the very best that the organization as a whole has to offer. Information sharing is thus enabling – and forcing – institutions that are international in the scope of their operations, to become truly global in character by enabling information transfer to occur across large distances within a very short time (Denning, 1998 cit. WILSON, 2002).

Wilson caught this text, changed the word knowledge by information and concluded that "made no difference at all to the sense of the piece" (WILSON, 2002). It was thus laid bare only a cosmetic operation, rather followed: the report of KPMG Consulting (2000) on "knowledge management" showed the same strategy

of renaming (Wilson, 2002). Replacing words for a "marketing issue", "fad" that neither international organizations such as the European Union have escaped!... (WILSON, 2002).

Dismantled the "fad", Wilson attacked the alleged theoretical basis: the operational notion of "tacit knowledge" and their capture process, which are at the heart of knowledge management. Going to the essential, Wilson had to revisit Polanyi, after appropriating by Nonaka and Takeuchi, what has been done behind the literature review and affects "organizational knowledge management" perspective, through the critical contribution of Rosa Nehmy and Isis Paim. Wilson converged, interestingly, with the reading of these authors, but could go further distinguishing between tacit and implicit, showing that this can be encoded (transformed in words, numbers, drawings, etc.) and that can not:

> Implicit knowledge is that which we take for granted in our actions, and which may be shared by others through common experience or culture. For example, in establishing a production facility in a foreign country, a company knows it needs to acquire local knowledge of 'how things are done here'. Such knowledge may not be written down, but is known by people living and working in the culture and is capable of being written down, or otherwise conveyed to those who need to know. The knowledge is implicit in the way people behave towards one another, and towards authority, in that foreign culture, and the appropriate norms of behaviour can be taught to the newcomers. Implicit knowledge, in other words, is expressible: tacit knowledge is not, and Nonaka would have saved a great deal of confusion had he chosen the more appropriate term. The critical reader might ask him/herself: 'Does it make any difference to the argument if, in the diagram, we replace "tacit knowledge" with "knowledge" and "explicit knowledge" with "information"? (Wilson, 2002)

Disassembly, operated by the English author, reaches, at this point of the argumentation, almost the climax, though not stay around and included a final point, before conclusions – "people management" which in the knowledge management area literature is a major axis. And Wilson also attacked this argument showing patent contradictions in the documents and authors who sought to sustain it (Wilson, 2002).

Wilson concluded, and worth mentioning, his relevant conclusion:

> I see no reason to change my opinions as a result of the analysis carried out for this paper, but I would add that, according to the rhetoric of 'knowledge management', 'mind' becomes 'manageable', the content of mind can be captured or downloaded and the accountant's dream of people-free production, distribution and sales is realized – 'knowledge' is now in the database, recoverable at any time. That may be Utopia for some, but not for many. Fortunately, like most Utopias, it cannot be realized.
>
> This analysis of 'knowledge management' may not have much significance to the world of business practice, where the academic literature is rarely read unless filtered through the 'airport book'. One might argue that for information practitioners to call themselves (or for the organization to call them) 'Knowledge Managers' does no harm and may do some good, in terms of giving a higher profile to their role (even if a number of them are rather embarrassed by the title). However, the aim of the university and of those who work for it is to expose ideas to critical analysis and to inculcate in students the same abilities. It is, perhaps, a sad reflection on the way in which the university, world-wide, has changed from the 'temple' to the 'factory' (Beckman, 1989) (WILSON, 2002).

Consider now the third and final perspective that, first of all, is synthetic or, rather, can be seen as a synthesis that incorporates central aspects of the critical review, signed by Tom Wilson, and some positive achegas it is possible to harvest the first exposed perspective. Designated in this statement of "cognitive, infocomunicational and systemic" it is, as the underlying Wilson's article, linked to IS, but specifically (and unlike Wilson) to the trans and interdisciplinary IS, characterized briefly ago, in the first item, and based on the positioning of information management in the epistemological framework of this IS, amended in 2005 and 2009 (SILVA, 2005; SILVA, 2009) and joining other achegas (SILVA, 2006a; SILVA, 2009a; SILVA; RIBEIRO, 2009). It is, therefore, a perspective that is published in a scattered way and, therefore, deserves now be concentrated and explained as clearly as possible.

The IS is an applied social science, which means in its horizon is the theoretical research and also the resolution of problems through the concrete application of practical solutions. In its "DNA" exists research (axial activity of information scientist manager) and application dimension (natural activity of the information manager) – dimensions that can be designed separately and in everyday social, corporate and institutional life, of countries and international organizations, are mixed in a way

that is artificial or even absurd to cut or impose distinctions. However, later, in the last item, we will emphasize it, the trans and interdisciplinary IS accepts and needs to share with other sciences and knowledge as the research, as applied action in information management.

Anyway, it is appropriate to note that this trans and interdisciplinary IS does not abdicate founding understanding on information management in own bases, which refer to operational concepts that are structuring to it. And, in this sense, we do not think it is excessive to use attributes like "cognitivist", "infocomunicational" and "systemic".

Michael Polanyi, as evidenced, was misread or somehow misrepresented by Nonaka and Takeuchi, and Wilson coped very well in the topic of tacit knowledge, showing that there is a kind of intermediate knowledge – the implicit – that can be expressed, becoming explicit, and that this would be, without euphemisms or useless rhetorical, synonym for information. But Wilson could have gone further, since he admittedly resorted to Cognitive Science and Neuroscience: cognition and emotion make up the "cornerstone" psychological of the person, absorbing and processing stimuli, perceptions, experiences, which are very important or, better, that have an indelible reflection on the behavior of individuals, groups and these throughout society.

Managers and consultants are right in valuing this "tacit capital", but, are swift to be content in express it by KM (knowledge management). Managers and consultants emphasize and seek ways increasingly sophisticated of better "manage the personal capital", ie, to develop the "people management". In accuracy and at least in the academic and university context, it is appropriate to be rigorous, as well stressed Tom Wilson, there is no knowledge management, there is people management (personalities, individually and collectively considered). For perspective at hand, the distinction that can be done is only (and is already very significant and complex) between cognition and information. Inevitable inference since it is acceptable a definition of information, which we can divide into three "modules" and the first refers to a cognitive reasoning (VIEIRA, 2001, p. 296-313; TIBERGHIEN, 2002):

"MODULES"
I structured set of mental and emotional coded representations (signs and symbols) and modeled with/by social interaction
II likely to be recorded in any material
III and therefore communicated in an asynchronous and multidirectioned form

Source: SILVA, 2006: 25; DeltCI (http://www.ccje.ufes.br/arquivologia/deltci/)

Rounding a bit without falling into unnecessary simplifications, in the first module is molded the relationship between mind and environment, without cognition is reduced to an intrinsic faculty of the human and untouched by the influence of the environment – this influence is of course modeling. Still, in the initial module of definition, explicit knowledge is absorbed, because, at root, knowing is to represent mentally/emotionally, and from the faculty of representing result many, like to understand/realize, learn, discover, innovate, etc.

A scientific paper, with news and discoveries, is applauded as a good example of scientific knowledge, being, in itself, information, that we can gather the adjective scientific, while a note put in a prominent place in any kitchen, with indication of lunch or dinner, do not deserve the knowledge category, but is, phenomenologically, information to what we can gather the adjective domestic. And, so, one can infer that it is not necessary to use knowledge or even information as if they were distinct concepts because information/knowledge mean the same, and if we want to distinguish the contexts and the quality, value, impact, relevance to humanity, of the texts, we have to, perhaps, to adjective accurately: administrative, financial, accounting, scientific-technical, scientific, sporting, domestic information etc.

The second module has a hidden significance: there is a subtle but effective separation between content and continent. The coded representations are formed in the mind, materializing out of the knowing and "informant" subject, outside the mental sphere, through the function of registration or inscription on – a stone, clay, tablets, papyrus, parchment, paper, digital etc. The document appeared by inscription function, and it was imposed by another associated function, but not symmetrical – the transmitter.

Confusing information with document is a gross misconception that has been committed and that is present in the triad data – information – knowledge. The mechanistic view, naturally grown by information technology professionals, led to tie data and information to technological unity capable of producing them and process them as if they were not, somehow, a human representation, technologically mediated, or in other words, poured into a "technological support". Those who confuse information with document, thus revealing the pernicious influence of "mechanistic" theory of Shannon and Weaver, felt, obviously, the need of a word that means something less tangible, something of superior intellectual asset – the knowledge! They entered into a maze, complicating what, being complex, is simple and understandable for ethnologists and anthropologists: in "primitive" communities, the narratives essential to their identity are transmitted orally, which means that this is coded information (representations expressed in the language of this people, which is preserved in the memory of everyone and especially of some members with special status and power; information that needs not to be registered out through writing, because, in these communities, there was not writing yet, but scholars, arrived from the "civilized world", registered on paper, recorders and film, producing document which is essential to the occurrence of what is prescribed in the third module.

Having document, communication is enhanced – third module – but it is only enhanced, because communication is the full sharing of meaning, which means something more than the transmitting function. This is essential, but not sufficient: the assimilation of information becomes new information that brings or returns the "correct understanding of the meaning conveyed" (or not...) and so continuously processes the dialectical interaction between the communicators.

The epithet of infocomunicational, attributed to this third perspective, comes from the articulation made between information and communication through a "bridge"– the "classic" document or the document-media (docmedia), electronic or digital – the digital platform (SILVA, 2012). The document link promotes symbiosis of two specific phenomena – information and communication – creating a symbiotic phenomenon which is complex and is distinctly social, emerging and keeping in demanding and refined conditions, never guaranteed to match and that today are very facilitated by information and communication technologies, more accurately and with more semantic advantage, digital platforms.

For that in a company, a government or public institution, in any organic context, occurs and flows, with overall benefit, the infocommunicational phenomenon,

modernization and technological modernization is essential, and that means, today, the irreversible hegemony at all levels of our overall life, of the information technology, and its range of applications, meaning that the classical notion of document, forcibly constituted by paper (technological product itself), is to exist, losing more and more ground to the notion of *docmedia* or digital platform or technological information system (= hardware + software + human and social use). It is therefore understandable that this technological aspect and the extraordinary innovations that occurred over the past two decades, have inspired, as Tom Wilson showed, the name change and fad of knowledge management.

However, it does not cost much, perhaps, to realize that it is a reductionism, and as such, a basic mistake: forgetting the transition period of the structural cycle, or the time in which we live, the transition of mentalities and practices, as well as technical and technological utensils. This transition is not linear and symmetric, quite the contrary. And the ongoing transition helps explain that the management of information adds the old and the new, and the more we are able to enhance, with experimented and robust documentary techniques (in classification, indexing, preparing analytical summaries, among others – OTLET 1934, Chaumier, 1973; FIELDS, 2001; LANCASTER, 2004; DAYS, SHIP, 2007), digital platforms and their functionalities applied to the creation, organization, storage, retrieval, reproduction and transformation of infocommunicational flow – strong point of manuals and training events, made and intended for dealing with competitive/corporate/organizational intelligence, systems and technology management, etc – softer and efficient in an infinite variety of contexts, it will by shown in light of all specialties and specialists that are related and complementary to it.

As for the "systemic" attribute, which is, moreover, closely with what has just been expressed, it has to do with a design of the Information System which has escaped a little to the understanding of IT and computer management experts. Just remember, here, what can be read on the appropriate entry of DeltCI (and SILVA, 2006):

> To avoid misunderstandings, it is important to distinguish Information System, crucial operative concept in Information Science, from Technological Information System, in entry below. Considering the synopsis related to the concept of System, an Information System is a totality formed by the dynamic interaction of parts, ie, it has an enduring structure with a flow of states in time. Thus, an Information System consists of different types of recorded or not information externally to the

> individual (what each person has in his/her memory is the information system), no matter what the support (material) is, according to a structure (producing/recipient agency) prolonged by the action on the timeline. The structure of an IS is a complex aspect because it is paradoxically autonomous and indissoluble of information itself: the subject of action (whether person or institution) that produces and receives information flow is distinct from this, but it is essential so that this one exists. The identification of the structure becomes a defining moment for us to fix the precise contours of an Information System and this is done, in Information Science, through technical pole of Quadrupole Method, more precisely through operations *Observation and organic-functional Analysis*. And one must not forget that the structure of an IS is or may be conceived itself as a separate System. An example: a company generates (produces, receives and accumulates) information over time, which means feeding the existence of an Information System, whose structure is the company (with its internal organization and the agents or employees), which in turn constitutes one or more specific systems. The authors on Management area tend to see different systems in a company: management system; human resources system; information system; technological system, etc. But this duplicity of the structure does not cause any confusion if clearly seen: when the approach focuses on systemically conceived Information, designed and studied its structure can, in other approaches, correspond to a system, but in Information System it is and it remains stably as structure (DeltCI and Silva, 2006: 162-163).

The entry is still valid and, as such, is properly the way how, in the perspective in question, it relates to the notion of Information System and extensive practice of Information management. However, seem to us necessary two notes of clarification.

The first addresses the assertion that the information in the memory of people is part of IS. This information corresponds to the "explicit knowledge", by Tom Wilson, and it can be documented and communicated, provided that the representations are coded, retained in the brain, ready to be spoken or written, or memorized. This information was confused from Polanyi, with tacit knowledge, but neuroscientists and cognitive psychologists can help clarify that this kind of information is not faculty of cognition, although it is its product, or result. And further: this kind of information can be categorized as scientific knowledge, for example, if it is related to experiences, discoveries and ongoing experiments in the Natural Sciences, or to research results in other scientific fields. But we are also designating information

that includes anecdotes, songs, drawn, photographed, filmed images... Anyway, the information that is inside and outside the head, constitutes an active and ongoing IS, but, when the feeder structure of IS disappears, it virtualizes itself, ie, it stays to its informational "shadow", designed in the information (of all types and sectors) that configure the materialized and maintainable IS, without limitation.

The second and last note has to do, ultimately, with the transversality of information management, precisely because the information is intertwined with other "objects" of study and consideration, in light of global strategic management, whether that entity or context is.

Carlos Zorrinho, in 1991, looked at a company, considered it an open and dynamic system, in constant evolution and adaptation, and invoking the legitimization of general systems theory (Berthalanfy), decomposed it in the management system, information system and structure system with other systemic varieties (ZORRINHO, 1991: 36-53). The exercise of Zorrinho shows – and this is positive – that the organization is a puzzle composed of parts that can be seen and studied with a view to practical approaches as specific systems, which requires to recognize that information management, focusing on IS, does not exhaust the systemic complexity of an organization, whatever it is, before it is enriched with the inputs of other looks and approaches. But, also, it is clear that his design of information management, reductively technology in the matrix, became hostage to definitions such as that proposed by Le Moigne to information: "formatted object artificially created by man, being intended to represent a type of identifiable event in the real world" (ZORRINHO, 1991: 43); or the one proposed by David and Owen: "information is data processed in a way appropriate to the means of processing, with real and perceived value in current and prospective taking decisions" (ZORRINHO, 1991: 43).

Experts and specialist obsession, which marked Modernity and led Edgar Morin to suggest the urgent change of "Method" (because of complexity), supported by a cyclopean analytical and reflective work, made possible absurdities clippings of complex phenomena, but gradually each one will realize that the atomization of reality becomes incomprehensible. Therefore, information is psychological (and social) and social (and psychological) communication and its systemic approach absorb, naturally, the technological as a positive extension of the human.

In short, we can close this item, intended to systematize a debate which we consider essential, and we assume the natural adhesion to "cognitive,

infocommunicational and systemic" perspective, that is constructively synthetic. Hence, for example, the easy incorporation, in a possible guide, to the information manager of IS matrix, of many of the considerations of Jose Rascão in his work, and despite its framed perspective and training in others assumptions and principles (Rascão, 2008). And open, inasmuch as it is not rejected that management experts consider useful to maintain the distinction, in our view unnecessary and artificial, between information management and knowledge management. However, in the epistemological framework of trans-and interdisciplinary IS, the professional with undergraduate and graduate degree receives a vision and skills of information manager, a word that means the same as knowledge, which requires that we opt for one or another expression and give up keeping trying reconciliations and acrobatic joints that do more to confuse than clarify.

We can not but regret that colleagues in the area of documentation and information spend time in such exercises. We mentioned in the list of the first perspective advocates, some Brazilian colleagues, but there are also other nationalities. Antonio Garcia Jiménez, expert in informative documentation and on "documentary languages", published a book in which he essayed paste the documentalist, he is in matrix, to the expert knowledge "invented" by the information technology, when, as we shall see in the next section, it is possible to form by root a Information management that has an array of applied social science (IS) and an incorporation of technology and Internetica component (domain of all kinds of digital platforms, including data or "knowledge" bases and the web 2, 3 and so on...) quite appropriate and effective. Garcia Jimenez said:

> Another point that shows the overlap of some aspects is the professional. The knowledge worker is a specialist who handles the web, who is able to structure and organize knowledge bases and who supports the installation and maintenance of software, next to a large extent for journalists and librarians and documentalists. If you give a revised figure of chief knowledge office (CKO), also known, among other expressions, as director of knowledge transfer, we realize this statement (Davenport y Prusak, 1998): dedicated to support learning, design, creation and supervision of the information system, library, knowledge base, computer and human networks, and research centers. Also form part of his duties relationships with providers of information and knowledge as well as its valorization (García Jiménez, 2002: 67-68).

Interestingly, this author recognizes that the documentalist was perhaps quite distant from the "project knowledge manager", because this would deal with "team work management of delimitation and adaptation of customer expectations, with work with budgets and, finally, with identification and solution of problems that arise"(García Jiménez, 2002: 68). He recognizes, after all, that in this "limbo"of knowledge, there are people who must be prepared to manage people and that a good manager of people is not distant from being a great chief executive officer, genetically a CKO, to be able to work... And to advise him must be obligatorily a dynamic and extremely efficient team (institutionalized in Sector, Division or Department) of information management with high level of technology (pure and hard IT and IT professionals).

In another version of this study we continue this topic, detailing the essential features of the information manager profile formed by IS taught and researched at the University of Porto, since the 2001-2002 academic year. Here, we intend to explore something that until now was getting to the edge of the confrontation between the operative notions of information and knowledge, although it is an indispensable topic. Resting, as it was stressed in the above definition of information, stops making sense any effective distinction between information and knowledge (explicit), but at the same time you must understand very well that there is a varied and extensive range of informational types naturally dependent of production context and hence of use. This is therefore a matter of the last item of this text.

Countering the "informational typology" to the ambiguity of knowledge

Situation, context and environment are quite in use concepts in Informational Behavior and Information/Knowledge Management/Competitive Intelligence, working especially well in conjunction with two dimensions increasingly crucial when dealing with the information: the value and quality. The value, understood as assigning a certain direction (or appreciative judgment) regarding the produced or received information, organized and communicated, requires validating presence of an organic-functional context, ie, a concrete unity of action defined by clear objectives, supported on specific material means and on technology and served by social actors with certain roles and rules. In turn, quality concerns internal aspects,

ie, the accurate determination of the predicates of information, such as: consistency, relevance, accuracy/evidence and longevity (JAMIL, 2014: xix). The value throws itself clearly in the triad situation– context-environment, while the quality, though not directly delete this triad, constitutes the genesis and identification of informational typologies.

We recognize, immediately, that enter the expression informational typology cause some surprise among Management experts and certainly even more among information technology professionals who provide application and support to management processes in various organizations. However, we rely on something that has centuries of use, incorporating a specific knowledge within the so called Historical Sciences, more precisely the Palaeography, the Codicology and especially the Diplomatic. The decoding handwritings since ancient times and parallel analysis of manufacturing of the codex on parchment, folded in notebook, sewn, bound, as well as more detailed analysis of the text proper size (spot formed by the lines of words, ordered and aligned within margins of the sheet of paper or parchment) in symbiosis with the material or support dimension (which includes the ink adhering to the paper parchment to be used with pen and therefore the writing process to be done by hand, resources is essential methodical when it gave the invention of the printing press, generalizing printing technology, today confronted with the digital, the internet or on line...), constituted to investigate the so-called "historical truth" that depended, for example, a strict match between external authenticity of the text (information), ie, that text had been entered on a particular date (and only then) the appropriate support, reproductions of the same text in brackets manufactured or obtained subsequently have not satisfied the essential category for the historiography of the original document. Autographs and the Apocrypha, ie, originals and forgeries still dominate the universe of legal evidence for the validity of contracts and accounting and tax documents, but on a completely different base material, the technological point of view: this distinction playing with a conceptual definition suit composed of conjugated evidence, evidence and proof in the complex and dynamic framework of digital platforms (SILVA, 2011, and 2012).

Our proposal in this paper is therefore to recover teachings "classics" that can be useful and timely in the context of Information Management. And, first, the idea is starting to show how one can overcome with a clear advantage, the counterpoint information – knowledge before investing in an analytical framework that helps us to identify and distinguish the information under widely varying types depending on

where it takes actors and the locus of action (situation, context and environment) and depending on the respective value and quality. In the previous items, but especially the second, we intend to demonstrate the misconception still very entrenched in a number of heads of the alleged qualitative differentiation between information and knowledge, and here it must be to find the path, based on secure elements arising from interdisciplinary research, to undo the mistake and allow work with information in a mature and highly productive way. Specifying a little more, uphold the "thesis" that is equivocal value a text (an article, a report, memorandum, etc..) That only contains new releases (obtained as by an alchemical process in which information "not worked or processed cognitively" is converted into knowledge...), claiming that this only matters for decisions to belong to the higher level of "knowledge". The scientific support, particularly through the Cognitive Sciences, is nonexistent, and that becomes increasingly apparent is that if we understand the information "as a structured set of mental and emotional coded representations" Products/informational sources are not opposed to the notion of explicit knowledge: absorb it. We are thus faced with a full synonymy. And the challenge that arises becomes simple and complex: identify informational numerous different acts (concrete events mentally and emotionally represented by one or more codes, besides the language) that match the precise types, taking into account the situation, the context and environment surrounding them and influencing. Simple, because we must avoid dubious subjectifications (reducing the notion of explicit knowledge to scientific knowledge, with its specific function of contributing successive discoveries, new releases, which is a practical absurdity...) and follow the evidence. Complex because of the diversity of informational acts, even in micro and small enterprises, generates typological similarities and overlaps as well as the types materialize on stands today, the same kind may be born digital and exists in parallel, on paper or stay in digital does not necessarily only in fixed or portable computer, may find themselves in servers that support the genre cloud applications like Google Docs or Dropbox, etc..

At the entry probative value of Electronic Dictionary Terminology Information Science, reads something that is appropriate to attempt rehearsed here to operationalize the informational type at all levels of management activity in Organizations:

> the evidential or evidential contribution of Archivist is very helpful since transformed immediately in a complex and fundamental sum, namely situation informational type + Organic organic memory context + need + = interactivity varying levels of

evidence (seen as an important ideas about the nature of the component process by which humans construct and uses arguments). SUM accepting any informational type from the legal to the poetic or musical and allows the information science rather than the truthfulness of the information that produces or uses, monitor / study will be aggregated as truth, untruth and other "semantic ingredients "in short, more and more information over such a dynamic process, as endless. a summation, in short, who is summoned by the full value of information.

Explaining the complex sum, which was stated in the entry, it can be stated that the data type is deeply conditioned by the situation and the organic context in which it is generated, becoming thus the raw material for all acts of management. But, as an input of the management process, it is essential to incorporate and be monetized as asset called "organizational memory", which, strictly speaking, should be understood as the capacity that organizations must retain for a long time and medium (conservation short of accounting documents has long been prescribed by tax law, although only meets the requirements and principles of taxation) of information that becomes necessary. The Documentation Centre Archive function or function translate that ability, that developed in modernity, but today, including with the change of material support, this type of functionality is in charge of servers with banks of powerful and extensible data they need providing the assurance of a safe preservation without limits – which, of course, is a crucial now to be fulfilled and technological challenge. If the "organizational memory" does not deserve much attention seriously weakens the principle of satisfaction of (short, medium and long term) information needs, as well as unfeasible is all based on interactive performances.

Explained the operating framework of coneito "information such as" the time has come to draw the scheme that allows implementation in the "field".

For this we can follow in order to examine it critically, the dominant view in Information Management, Knowledge Management in the Competitive Intelligence or the valorization of the decision-making axis around which revolve indispensable information for this goal, subordinating how many other less or little relevance to decision-makers.

Decision making is, in the abstract, decisive, but can contain a high degree of imprecision. First, in the upright and, even more, in flatter organizational structures, there is no single level that concentrate all decision making; the decision will be made at intermediate levels, and project teams to analyze and conclude what is valid and

relevant in a regular and constant. This means that the approach generally taken, and that puts the decision in the top of the pyramid or the surrounding dome of the various project teams, is clearly reductive. It seems therefore clear that the decision process is complex and crosslinked with multiple activities and tasks in all sectors of the Organization.

Given this finding, we find two imperatives: it is inevitable periodic census of informational types, which implies, within each company or entity, an extensive list periodically revised; and use of the methodological criteria proposed operation evaluation of information flow (SILVA; RIBEIRO, 2014: 19-41; Ribeiro and Silva, 2004: 7-37). Strictly speaking, the combination of these two requirements can operate using a scale in which the three parameters defined [established] from defining strategic instrument of the entity's mission, its goals and objectives, and additional instruments with successive organic and functional changes encompass an indefinite number of informational types. For instance, it is important that the concept becomes clear and do not feed any doubt, if we identify a technical report, a memo, a letter, a balance sheet, an invoice etc, we are implicitly naming different informational types, because each of information are cited (structured set of mental and emotional coded representations – Silva 2006: 25) organized internally in its own way that fits the nature of the global regent sense (taking into account the situation and context of production and communication of that meaning), inscribed on a tangible medium, and such registration entails significant adjustments to the content (information) to the form (due to the material basis of registration). Information entered a support became the "classic "formula to define document operational concept that the widespread use of information and communication technologies do not become obsolete before forced a metamorphosis that led to docmedia (SILVA, 2011; 2012).

Mentioned above the grid used in the operative part of the evaluation of information flow, as appropriate methodological operation in technical polo quadripolar method (SILVA; RIBEIRO, 2010: 9-11), because it is beneficial to the delicate task of distributing real-time and subsequently, the information that is being produced in an organizational context. A grid or outline formed by three parameters:

- relevance: "literally means belonging to the action of someone or entity can be measured, in informational terms, through the essential triad OBJECTIVES (reason for being) and SKILLS STRUCTURE + / + MEMORY FUNCTION, a gradation of three levels (A, B and C), corresponding to a direct, indirect

or peripheral relationship of informational documents with the statement triad" (Ribeiro and Silva, 2004: 24);

- density: "exactly means quality of what is dense, thick, compact, implies, in informational terms, whether an act or document is primary / original, with / without duplication / exact copy, or if it is secondary (or summary synthesis and accumulation portion of primary / original documents), with / without duplication / copying" (Ribeiro and Silva, 2004: 24);
- frequency "means amiudada repetition of acts or hits [hits] [and] is understood here as quantifying the frequency of use / access to information, whether at the stage of production / reception (reproductive or operative phase, also called current or administrative) or in the immediately subsequent phase (stable phase, post– reproductive and post– operative, which is perennial and permanent, as well as progressively more open to external access to the file system) and can get the results in both phases fully enlighten us on whether or not there is an "intermediate use" (debatable) and even if it is true or not that the Administration fully loses the need for access to information over forty years old" (Ribeiro and Silva, 2004: 24-25).

Already tested robustly within the operation of the methodological assessment to determine the documentation that must be preserved, while organizational memory fully accessible and available, be recognized here for the first filing an application in the sense of decision-makers lean on criteria that help collate information as to their organic nature, ie, be more or less consistent with the mission of producing / collecting entity, its general and specific objectives, as well as its density, ie, just because they are dense documents fragmented and more dense because the condition of the cumulative concentrate them piecemeal.

The guiding formulation of future applications interests above all explain that there are informational types / documents, indelibly linked to the specific mission and purpose of the entity or organization, the minutes of the meeting of the Directing and / or Board of Directors; correspondence or emails; chips from customers; chips from suppliers; technical and scientific information about 'product' core business; etc.. That this type of information (documented) is permanent conservation, there is no doubt as to the expertise developed in assessment procedures according to the grid and Silva Ribeiro, but exciting, now, is to check whether the level of relevance A, B and C can help decision makers to the extent that they fit and show there use to them in that separation

of information within that parameter as well as the density and frequency translate some efficacy in the "field". Note also that there are B-level information – financial and accounting – which corresponds to the so called medium activity (the level is the "end activity") and that should not be seen only at interest for checking accounts and audits, or attestation from the competent tax authorities. She has a predictable decision-making interest in GI and Competitive Intelligence literature goes unnoticed (Choo, 2003; Rascão, 2008 and 2012, and Tarapanoff, 2001 and 2006).

One thing, too, seems certain: in small and medium enterprises and, desirably, in micro businesses, decision-makers need help, the complexity of such "paradigm del maze" (Grompone, 2011) in which we are immersed. The maze has informational inputs and, increasingly, seems to have no outputs with complete and solid answers. The superficiality, fragmentation, the ephemeral contents hang heavily on the information behavior of digital included, that do not necessarily show (and the problem is to escalate) satisfactory levels of information literacy, ie, levels of critical ability to search, selection and use of information sources on the Internet or on paper. On the contrary, mastering the technology and browse the internet does not mean agility in terms of literacy. Hence it becomes obvious the need for, either by outsourcing or consulting, the presence of an information manager that monitors and updates [update] the technological dimension (internet access and appropriate use of open source applications) and ensure organization and practices of the most efficient retrieval of information, located and organized for use within the company.

Specific task is the implementation of the GI scale and Silva Ribeiro, with a view to taking decisions by the entrepreneur and his partners, the top management of the company. The mapping of informational types distributed within the relevant parameter, the respective levels is a priority and essential step. Opens here an expected line of major results on the impact that a systematic activity of GI decision-makers can have on your decision behavior and the economic results of the company.

The formulation is released; an investigative streak that needs to be explored...

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