The computer objects looking for their social and organizational implications

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INTRODUCTION

> Banished ... objects remain in the relentless distance of the space, none material part may share their space with another, and in the space does not existing any real multiplicity unit (GEORG SIMMEL, 1986).

Husserl argues that each person lives in a world, in the natural attitude, as a 'human person living among others in the world' (1989p. 411). In this attitude people take, for example, the social surrounding, houses, values and social life, including

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one's friends and the court of appeal, for granted, and people do not normally reflect upon this. This is the attitude people hold while living in the life-world.

In contrast to Husserl, Schütz argues that the researcher should start with the life-world, where the person acts within the natural attitude, which the actor takes for granted (SCHÜTZ, 1975, p. 5, 51). Schütz is clear about his major break with phenomenological philosophyp. 'as we proceed to our study of the social world, we abandon the strictly phenomenological method. [...] One central idea is that the researcher should, in order to understand the person or persons she is studying, try to grasp what phenomenologist call 'meaning structure'. This notion refers to the web of meanings that are mutually constituted. Meanings, in other words, come in structures and attain meaning in relation to other meanings, not in isolation. This process of meaning constitution is largely a social process, which means that the researcher who is interested in this must study it when people interact (ASPERS, 2004, p. 3-4).

To begin to understand this network of meanings the first research question in this section is: things are different objects? Why it is important to make this distinction? This differentiation is needed to define what exists in the natural world and in the artificial world of human being-made objects (BATESON, 1996). It is relevant to

understanding social agents meaning level. Because, on these bases we can one make the research inference about the things and the objects. Since point of view of Gadamer some element is 'recognize as something' when its essence has been grasped (quoted by KENNETH R. TRAPP, 2007, p. 8).

As a first approach to the differentiation between the two terms have been sought in the dictionary were found the following meanings for the term thing: (1) The word thing (from Latin *res*) refers to all that is or exists. (2) It is said as opposed to person, idea or joke occurrence. (3) In some negative sentences, nothing: not worth anything, insignificant or vulgar. (4) In some Latin-American Country is used as an ironic negation Ah! Thing (LAROUSSE, 1991, p. 281). Also thing noun \'thiŋ\: an object whose name is not known or stated: an object, animal, quality, etc., of any kind (WEBSTER, 2014).

In reviewing these meanings come out three general conclusions: (1) These meanings to things defined as everything that surrounds human being naturally, (2) the language is constituted by different semantic and syntactic elements that turn it into a complex area of study; and (3) things meaning condense and materialize multiple even contradictory concepts (figure 1). As proof of both inferences and to try to delve into these general elements, in the meaning of thing you might find the

following words involved: man and woman; groups and individuals; vertebrates and invertebrates animals; the jokes and dramas; party and death; the sign and the soft; destruction and production; rational and irrational; the rise and the fall; the part and the whole; intelligence, movement, morale, invention, value, incorruptible, postures, attitudes and joints. In this relationship can observe a preliminary partial diagram of what naturally constitutes the world.

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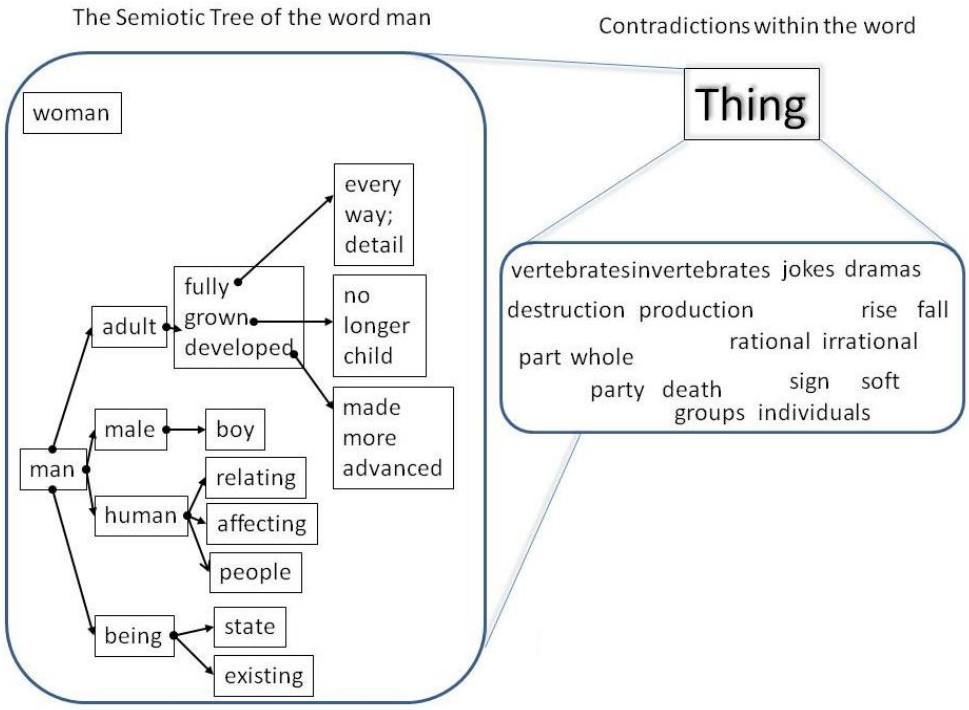
Figure 1 – The inherent complexity in the meaning of the term thing



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Other components that can be incorporated to the map things consider them as observable entities and subjects of analytical contemplation for human being. In this sense, Karel Kosík (1967, p. 39-40) asserts that human being to know things himself must first to transform them into things for themselves and establish how it? Are independent for him and then submitting to his own practice and check how they are when he is not in contact with them? That is, becoming aware of what it means

to be in touch with. Thus, within the approach process to things; its structure; and meeting with an analytical access path to them, the human being must maintain a certain distance. This distance to will allow comprehend and abstract better the essential elements that enable its realization and existence.

So far we have analyzed synthetically the thing concept. Now is pertinent to ask: What is an object? Here the response is broader. So, we have objects are the end product of the *homo faber* and of his desire to dominate the environment around it. Objects are the witnesses of the human being presence as static symbols of the organs of his body.

The word comes from Latin *objectum* object, past participle of *objicere* (put forward) and etymologically it means thrown against, which exists outside of ourselves, something placed in front of a material nature, all that is offered to the eye and affects senses (LAROUSSE, 1991, p. 731). The reduced meaning proposed by the Webster dictionary is object noun \'äb-jikt, -(,)jekt\: a thing that you can see and touch and that is not alive: someone or something that makes you feel a specified emotion: someone or something that your attention or interest is directed toward.

By the other hand for philosophers (DONELLY, 2013), the term object is conceptualized in the sense, of what is well considered as it is and such opposed to the thinking

being. The term object is founded on (1) the resistance aspect to the individual; and (2) the material nature of it (MOLES, 1974). In opinion of Gylbert Ryle ([1949] 2009) material objects are situated in a common field, known as 'space', and what happens to one body in one part of space is mechanically connected with what happens to other bodies in other parts of space.

Objects in the Western civilization are characterized by its artificial nature and its passivity. Artificial objects are to be the result of a manufacturing process generally oriented to consumption. Passivity is certain due to they have a degree of dependency objects saved with regard to human beings. For example, a stone will not become object until it acquires any function or intentionality for the persons.

Objects talk of intimacy, habits and preferences. Intimacy is defined by the number of objects around the individual, and in this progressive world this number is increasing. The progress of an industrial civilization is related not only to the absolute number of objects, but also the complexity of its collection. The variation of the number of objects depends of the culture in which they are developed. In other words, the objects show the existing cultural differentiation among different societies, their fragile bonding, the short-range and the discontinuity existing between them.

Habits and preferences determine the morphological structure of the object. For example, cars in the past had a square shape, little bit aerodynamic and not so aesthetics. Currently, they have been made more aerodynamic with rounded tips, but opinion of some people they remain within the realm of the unaesthetic. These changes originated largely by consumer preferences and by the new materials discovery. Also the designs were adapted to humans as an attempt to improve the integration between human being and machine. Equipment and machinery in this way created became ergonomic.

Moreover, objects are generally characterized by their dimensions consistent with those of humans, therein lies its utility and functional richness. These features facilitate their operation and transportation, although there are some exceptions like the machines used in industries that often exceed the dimensions and characteristics of human beings.

Finally, an object can be considered as autonomous and mobile. A piece of furniture does not acquire the characteristics of the object until it becomes transportable, like a table or a computer. That is, when the object manages to transcend time and space to gain speed and consequently a new position as if the object had a fourth

dimension (SAYDER, 1997; COHN, 2010). In sum, the objects are elements of the world built by human being. Therefore, they can be managed or manipulated by him almost freely, according to their volitional capacity. So discover its essence from that which does not change regardless of variations assumed by the object. The following Table 1 presents a synthesis of this introductory discussion. The article is divided into two parts: 1.What are the computer objects? And 2. The computer objects in the modern organizations and it is directed to all persons interested in the topic.

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Table 1 – Thing and object its fundamental characteristics

Thing	Object
Natural	Artificial
Spontaneous	Made
Active character	Passive nature
Dependent	Autarkic
Static	Mobile
No handling of human being	Manipulated by human being
No human dimension	It has a human dimension
Any society	Industrial Civilization
Talk of exteriority, without any preference	Speaking of privacy, tastes, habits

Source – Prepared with data from dictionaries.

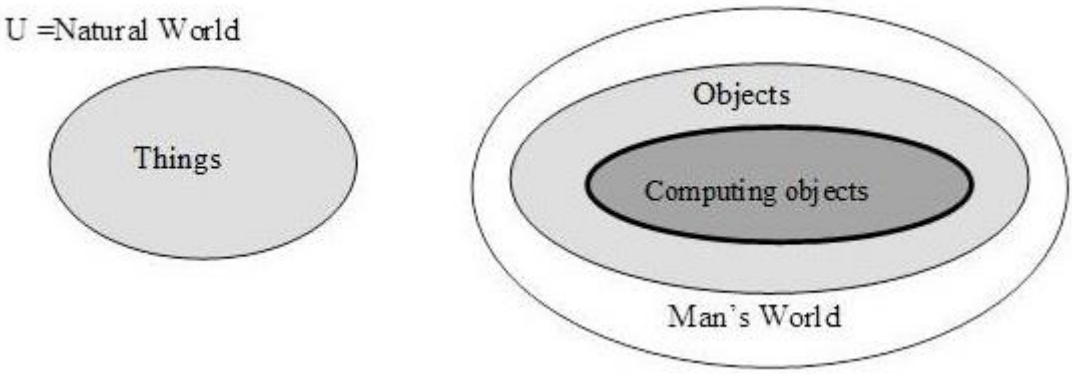
WHAT ARE THE COMPUTER OBJECTS?

Computational objects are designated as all the tools and equipment that enable electronic data processing, information and communication, both within and outside of an organization these objects are closely related to the use of electronic computer equipment (see the excellent articles coordinated by TINCUTA HEINZEL, 2010). Thus, computational objects definition identified in this research are sufficient and necessary elements for starting this work. Therefore, in the subsequent paragraphs the definition of such objects will be extended.

Why are computer equipment referred as computer objects? Because, these characteristics situating them inside the terrain of the objects not in the things field. Herein lies the usefulness of the previous section where the analytical differentiation between the natural world and the artificial world created by human being is established (figure 2). This definition will be expanded below.

Figure 2 – The reality representation:

the natural world and the artificial or man



Source – Prepared by author.

Computer objects are a subset of the objects located in the artificial world created by human being. So far we have cleared the first section of the question. The second part comes from the role these objects play in today's world (MESTRES and VIVES-REGO, 2013). The computers word is a contribution of French *informatique* formed to

designate usefully the science and technology of automatic analysis and information processing (PANIAGUA 1992, p. 13). Consequently, these objects will be in charge of data processing, information retrieval and of accelerating communication activities in the modern organizational world.

Some proponents of organization theory like Rod Coombs, David Knights and Hugh Willmott (1992) frame all these teams in the information technology and assign two main functions within the modern organizational world: (1) discipline and (2) concept administrative control. These researchers argue information technology is a means to direct thought and action inside the organization in order to discipline members do not agree with the desires and expectations of senior management.

They also maintain that apparent objectivity of data hid values that senior management impose to his subordinates by determining which data are important? And how should they be reported? This imposition of top management may originate the establishment of rhythms, timing and movements aimed to achieve efficiency and optimal use of resources.

But sometimes the economic rationality produces the opposite effect. For example, to reach the goal set by the production manager an operator neglects aspects of

quality. Perhaps this case is not so serious, but in services or products that are related to human health life, "ignore" quality standards just because efficiency requirements, generate problems huge dimension.

Since it is possible to see, these objects traditionally have been framed within a particular domain of human knowledge called Information Technology (IT) and more specifically on the hardware and software items. Below in Table 2 is showed a breakdown in more analytical levels consolidating a taxonomy we will work with throughout the present study.

Importantly, the designation of computing objects presented here does not seek to replace the Anglo-Saxon words: hardware and software corresponding to the field of information technology, but progress beyond this technical specificity and display differently and reincorporate to them knowledge, awareness and confrontation elements lost when viewed only from a technical perspective. And as a consequence making possible their insertion and study in to the organizational theory field.

Table 2 – The elements of hardware and software

Hardware	Software
Monitors	Operating Systems (Individuals and

	networks)
Central Processing Unit	Programming Languages
Keyboard	Application programs
Mouse	Tools
Stylus	Utilities
Joysticks	Videogames
Scanner	Databases
Ball point	GPS
Tables digitizing	
Video goggles, electronic gloves and electronic mats	
Networks	
Printers	
Plotters	
Modems	
Tablets, laptops, I-Pads	
CD, DVD, USB, flash memory	

Source – Prepared by the existing market data.

It is also important to clarify that by designating of computing objects it is pretended to get away from the discussion held by some contemporary writers (LYOTARD, 1979, p. 4) talking about IT as that element which provides the society with "perfect information", which implies a transformation of the society's interests (see BECK and GRANDE, 2010) going from for truth or the search of the truth to what is useful.

Furthermore, the view of knowledge as a commodity and its everyday interpretation as "the hallmark of an educated mind" is abandoned. This distance is

not in a futile or trivial consideration but because it escapes or overstep the bounds of this article.

Computer objects have real, consistent and precise functions to streamline communication processes to the transform data into information (ROSZAK, 1986). But in parallel they also have a virtual or symbolic function. This symbolic function is accelerate all the bodies, the messages, the processes, in many senses and together with modern mass media have created for each event, for each account for each image a simulated trajectory that it is projected into infinity (MAFFESOLI, 2014).

In other words, every political, historical, cultural, fact provided with a kinetic energy that removes it from its own space and drives it to hyperspace which makes no sense, since there it will never return. To be able to see this is not necessary the science fiction. Since some time age a virtual, imaginary world that was opened with the arrival of television in everyday life exists. The facts in it are unrelated to reality, a reality that blurs and integrates itself into the imaginary. With the arrival of computers, in the here and now, with our tours and our networks with particle accelerator, has definitely broken the referential orbit of things (BAUDRILLARD, 1993, p. 10).

Computer objects exert a different charm as it refers to a virtual energy, so that they are no more the receptacles of human appearance but the bearers of a dynamic image and of a capacity for knowledge generation. The energy of these modern devices sometimes is discrete and continuous and other shell and elliptical shape.

Computer objects can only be manipulated as a unit. They just work collectively and with a different energy to the animist. One its function only makes sense when they are kept linked to a computer (although for analytical purposes they can be break down to allow the discovery of some syntax or some order or own topology).

For example, computer keyboards have gone from a horizontal level to one ergonomically shaped wave, like a protozoan. They go from 84 or 86 to 101 or 105 keys and properties that their manufacturers characterize as "smart". In some other cases have disappeared, giving way to other input devices such as voice digitizers. Thus, in about fifty years that have passed since the first computer was built, the data access the vehicle of contact for human being has changed. He past goes from a communications (see WAGNER and PICCOLI, 2007) through the sense of touch to one using the voice (in a short time will smell related devices to complete the set of feelings –see RICHARDSON, 2013; CARVALHO, 2014).

This transformation may involve of independence desire of the human being in regard to the machine. Human being wants to conquer his living space, his mobility, his decision-making and freedom to act. And paradoxically he wants to find the machine his counterpart, another "person" to whom he can communicate with. Looking thereby emulate in the machine a conversation with another human being.

In a communication and information world, the performance of energy is a strange situation. Two features make this world something unique: (1) miniaturization and (2) its gestural nudity. These features on having materialized in the computer objects suppress in their symbolic evidence.

In this sense, Georg Simmel (1986, p. 29) states "the imaginary modes follow the modes of technical developments. And the way of the future wrapped in technical efficiency will also provoke a new mindset of the imaginary. The image has external things for us [the] ambiguity of external nature that everything can be regarded as [...] linked, but also [...] separately. The uninterrupted transformations of matter and energy relate everything and make a cosmos from all the particularities".

This mode combines the imaginary duality between matter and energy, of which barely the objects are displayed clearly, but maybe after the structures imaginary energy, of the animist imaginary and the ones of the structures will be studied the cybernetic imaginary, whose focal myth is no longer the one of an absolute organism or the absolute functionalism, but one of an absolute interrelatedness world.

Within this absolute interrelation, where the clang supplies the unspoken message generated by a computer keyboard, they seem to reveal the existence of a paradox in this communication process (such as with use mobile email devices-MAZMANIAN et. al., 2013). While individuals communicate themselves at the level of the world, synchronously, remain in the deepest solitude even expressing an attitude of hedonistic type. Consequently for humans, the computer becomes a 'second self' (TURKLE, S. 1984). With this new form of human interaction also it is established a new style, understood as rhythms and forms -where time and space take on a different content. Time will be defined by the machines and space vanishes and losing its essence during the process.

According to Baudrillard (1979), the everyday environment (referred as a certain space and time) is divided into three modes unevenly. As proof of this, there are

three objects, which are the remaining of the styles in the past dominated society. The old dining room sideboard, the car and the gramophone are objects representing different eras and coexisting in the same circle every day. However, they are radically different in their mode of imaginary existence as in its mode thermal to existence.

The idea of the previous paragraph should be added a fourth mode in the view of Baudrillard. The fourth mode proposed here, it has a computer as its representing object. The arrival to the family context breaks the circularity of had been preserved by his predecessors objects. In this sense, the computer and its peripherals such as computer objects have a different nature to the cars or to the sideboard one. Computer objects are not a reflection of the physical externality of human being, as mechanical objects once they represented the externality of the human being physical strength.

Now the computer objects are the material expression of human intelligence. Thus, the computer as a representative of a new series of objects (computer) becomes simultaneously a creator object of knowledge and in the manifestation of a kind of "technical illiteracy" for the human being who handled it for the first time. This illiteracy is evident when human being becomes unable to operate, manipulate or interact with this "modern gadget".

Computer objects thus become symbolic operators that enable human being to reconstitute the cosmic balance as once the traditional objects did used in rituals or sacrifices. But the great danger is that in this process of symbolic interaction may lose its identity (see STETS and BURKE, 2000). This loss of identity is achieved in two ways: (1) the human as an individual and (2) the group in reference to its species. Both are embodied in everyday human-machine interaction or in terms used here, in everyday relationship human-computer object.

As a consequence, the dimension and the perception of both personal and social individual distances are distorted. On a personal level it appears the human being sees in the computer objects an entity that fascinates him and forces him to submission. It is probably the result of an instinctive reflex that drives him to give up living his space faced with the cyber onslaught. This last idea is reflected in everyday life, the computer is already a member in the modern furniture. Even furniture whose sole purpose is to preserve and facilitate the operation of computer objects in the home and in the various places where its presence is necessary and essential has been created.

At the social level human being has also changed. Human being is a social animal; therefore, it is vital keep the contact with others, not just physical or communicative,

but psychologically. Social distance is not simply the distance an animal loses contact with his group, or the distance you can no longer see, hear or smell his community - rather a psychological distance. Human being, through various technical communication objects including computer has managed to increase social distance, which allows integration of group activities over long distances (HALL, 1972, p. 22-4; CASTELLS, 2014), but he lose those societal elements that identify him with the group in words of Steuer (1992) attended to telepresence.

Thus, for Georg Simmel there are two forces acting together: (1) differentiation and (2) individualization. "Differentiation and individualization weaken the link with the next person to weave a new one real or ideally with more distant" (FRISBY, 1993, p. 131). The closed or rigid social circle is weakened by the individualization of its participants and by the fact of extension and connection to remote individuals. Within the limits of an organizational world, this has generated a paradox it is a tangible reality (DORFMAN, et. al., 2013) which constitutes an abstract entity known as virtual or holographic organization (MORGAN, 1997, p. 104-6). Allow parallel analysis in the organizations phenomena that integrate the society through the networks approach. It will permit to study better the insertion of computer objects, as analytical tool for the study of modern organizations.

Finally, it should be clarified that these items should not be confused with a recent form of programming called object-oriented (OOP) that is closely related to computer objects but will not be studied in detail, since is not the central purpose of this work.

THE COMPUTER OBJECTS IN THE MODERN ORGANIZATIONS

The analysis of objects (as manufactured or artificial part) arises from the observation of the processes of production in which was not feasible to adequately specify the compliance with design specifications, mainly due to variation generated by machines and tools. Therefore, the key innovation introduced since 20's in organizational control is having taken into account the random. The latter was discovered through the methods proposed by mathematical statistics. For this work purposes his discovery is very important, as the information concept will be coined in his bosom.

Thus, in the early twentieth century, determinism as a dominant conception among engineers and scientists shifted his gaze to the industrial organization. To belief in determinism within the industry and American academic media directed the research towards the uncovering of a way to achieve greater accuracy in organizational processes, acquiring its material essence in the occurrence of

various means to facilitate the interchangeability and liaison between the various processes in the organization. These objects and standardized processes in morphology sought to reproduce the image of human being and his body and to recover certain elementary functions such as gestures, energy capacity and needs.

The objects generated by this type of organizational world view, therefore, -in Baudrillard's opinion- charge a specific function, consolidating in its creation a functional subjectivity characterized by an obsessive and manipulative contemplation. In this serial stage, a daily and incessant de-structuring of the crazed spirit or exalted by details is coined (BAUDRILLARD, 1979, p. 132). This Baudrillard idea the elements of the era characterized by the dominance of uniformity and linearity of thought are condensed.

In this counter-movement non-linear deterministic control approach emerged, initially limited to the field of production time, but over the time it spread to the rest of the organization. This non-deterministic control is mainly developed at Bell Labs and since then became an ideology still evolving within the organizational processes. Over the years it would gain further strength and importance, mainly driven by the turbulence of an organizational context. As a result of this diffusion

process, in 1929 the American Society for the Advancement of Science posits three rules on random systems of whether static:

1. None probabilistic system causes is equal. Since not all can predict the future in terms of the past.
2. There are certain systems in nature with its genes based on random type constants.
3. The responsible causes for variations can be found and eliminated.

We must recognize these approaches were (and are) heavily criticized. The strongest criticism of these foundations questioned its scientific validity. Within this environment emerge as controversy the term information.

From this point, the information and its processing using computers constitute a new vision oriented to automation seeking consolidation of human being superstructure functions, it consist of favoring conscience autonomy, power control, individuality; In short, the idea of person.

In this sense, Baudrillard (1979, p. 130) argues: "The automation becomes the customizing dreamt referring to an object level it is the most complete form, most

sublime of the inessential runs of that marginal differentiation through the personal relationship of man with his objects".

So far, it has been observed computational objects arise in science and gradually acquired their own space within everyday life. As result of this range of possibilities, their study also allows us to reach them from different levels of analysis. Therefore, we selected among this proliferation one in particular it regards to materialization in modern organizations. The analytical instrument of approach to be used for study is the "knowledge management" (BAYART, 1995), it has been traditionally the means of discipline and control within organizations. These are the 'practice' understood as modes of action and think of a time that gives the key to intelligibility correlative constitution of the subject and object as Foucault it called archeology (quoted by CAEYMAEX, 2005).

Nowadays the organizations get aid from computer objects to achieve compliance with both organizational objectives. This situation has been materially consolidated in networked systems that now allow the optimization of the discipline and control of all the individuals that make up today's organizations. Now, networked systems impose time and pace to perform processes such that individuals are subject to machine as once happened in the productive sector.

To study these problems there is several analytical proposals concerned about the birth and dissemination of "knowledge management", particularly those that have been consolidated in computer objects. By looking at the computer objects from an unusual angle it is discovered they have provided the means by acquires which certain knowledge materiality. Tradition in this approach is geared more to explore ideas. This is How do they get born? How have they proved its relevance? And what are the advantages they can provide to explain their success?

The difference from this traditional view is the content of thought which presupposes discipline; control and relevance supported by management methods, data processing and information. These knowledge are supported in various concrete forms, whether tangible (internship, practice communities, or hardware) or graphic (control charts, manuals, methods and procedures, or software), which are a kind of illustration argument, proof or means to put it into operation.

In short, objects are the consolidation of this knowledge. Within this consolidating knowledge system, computer objects participate as a promoting agent, allowing the storage, processing, nesting and production of knowledge almost instantaneously. They also serve as a means of validation from the epistemological and logical areas

of knowledge thus generated. This knowledge is strengthened and disseminated by the systematization and implementation of a number of professional practices, communities of practice, organizational structure, informal networks, and individual memory (CHARUE-DUBOC, 1995, p. 11-23; CASTELLS, 2014).

Graphical representations, for example, have had till now and a major place in the world of objects instead since its genesis in American railroads (CHANDLER, 1962) to its current use in the management manuals. Manuals are a particular kind of book, are specific objects that play a role in the dissemination of knowledge. Another way to confirm is the dialogue conducted through by images as representation of the knowledge. We have in the transformation undergone by the administrators of computer application programs, changed its presentation textual, to symbolic through icons.

This transformation process suggests that human being comprehends better knowledge through symbols. Perhaps this is because the command avoids you have to remember a larger amount of data and instructions simultaneously and also avoids confusion or translation to or from other languages. In addition, the use of images requires no explanation. It is just necessary to look and point in order a particular symbol for communication between human being and computer object is

set (perhaps to correct the incompatibility between computer and human being on the level of partnership area).

Also use thereby its use circumvents conflicts that might be hidden its creation, operation and management, due to the causes of the conflict are contained in the equipment and programs that integrate computers. These introjections hide a series of contradictions and concomitantly incorporate a set of rules in everyday life of all human beings.

Moreover, it is noteworthy that operation of certain knowledge as the study of time and motion require particular instruments. In the case of computer data objects and their transformation into information also it is required special treatment and individual instruments as their final use generally results in decision-making within organizations. In this regard, Professor Henry Mintzberg (1996, p. 31) argues: information is crucial to manager performance, and that is manager who determines the priority of information. Through their interpersonal performance manager obtain information and the implementation of their decisions put it into operation.

Knowledge construction consolidated in computer by objects could be analyzed at least from four points of view:

1. The construction of theory as knowledge elements and as points of support of the rhetoric of their promoters.
2. The operation of knowledge as mediators to the action. The properties of this knowledge to the action consist of the link they have with objects.
3. The diffusion is the material aspect of knowledge. This knowledge is incorporated into the social life in the same way that does other objects. They can take the form of ware integrated into the sphere of the circulation, exchange or trade.
4. Strengthening and the attainment of these this knowledge it is achieved through to practices and professional performance.

The culmination of this section and as a preamble to the following one it is presented the taxonomy provided by Andrew L. Friedman (1994) where we can distinguish four phases in the development of the information field in the American Union: First limitation on the ability of the hardware; second the limitations on the productivity of software; third limits in relation to users and fourth the organizational

environment as a constraint to the development of Information Technology, (IT). Some characteristics of these phases are listed.

First phase: limitation on the ability of the hardware. This stage is characterized by high prices, low capacity and reliability of the hardware. Successful innovation was measured in terms of price/performance. Teams were required to be faster. Meanwhile, developers worked on semi-permanently in user organizations, where they developed their creativity oriented to improvement programs.

Second Phase: the limitations on the productivity of software. Around the sixties and early seventies, the gap in software productivity emerged as key theme in the literature of IT. A number of books and articles appeared on this problem at that time, although it is important to note that the problems of software were always present. Writing programs in the fifties and early sixties was laborious and error-prone. Gathering specifications-from users-and staying within budget limits was always the problem.

Third phase: limits in the relationship with users. In this stage the relationship with end users always was one discussion topic. Apparently for IT specialists, users do not

know what they wanted and their ideas changed during the development of a computer project.

Despite this situation, technical improvements and changes in using systems organizations stimulated the development of IT. This culminates with the arrival of personal computer to the computer market by the early eighties. The manual administrative systems were replaced by computerized systems. But this process of transformation took some adjustment problems; the data collected manually were not compatible with databases. Problems with users enabled the development of peripheral equipment of direct data manipulation, such as "mouse" or touch screens. They also allowed the emergence of outsourcing information companies (BLOOM *et. al.*, 2009) who were responsible for processing the information of user companies in own facilities but different ones of those in where data were generated.

Fourth phase: the organizational environment as a constraint to the development of IT. In this stage the environment organizations will be perceived as the provider of key constraints to development of IT field. Then the direction of technological effort could be towards overcoming these limitations. If this successfully happens, there would be a rapid proliferation of information systems that would cross the

boundaries between organization and its environment. The electronic exchange of data and systems to support strategic decisions would proliferate in the nineties.

From these statements it might be wonder where is the computer located inside of the organizations? What are the possible organizational changes generated by computers, their objects and knowledge? Feasible answers to these questions will be tackled in the next section. But it is pertinent to note the analytical proposal Andrew Friedman (1994) to distinguish the different stages through scientific and technological discipline has passed and how in each computational objects have been transformed and influenced the structuring of modern society and its organizations. Also a Friedman wider IT perspective is glimpsed, allowing it to start building a bridge between IT and organization theory (devices or mechanisms to provide a common set of ideas as proposed GERALD F. DAVIS, 2006).

BUILDING THE BRIDGE

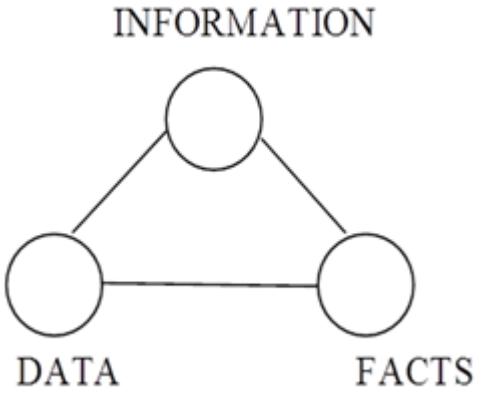
The contents generated and processed through computer objects bear no reference with the real world from they were extracted. To explain more specifically the construction and transmission knowledge process a model composed of some

analysis to determine relationships between them (see the subsequent figures was built).

The integration of the elementary structures allows the development of an explanatory conceptual model (structure) of the observed facts. Also serve to prognosticate the reaction of the set if some elements are modified (MULLER and HALDER, 1986, p. 153-54). These elementary structures are represented by a simple triangular structure with three points: (1) information, (2) data and (3) facts.

In figure 3 these elements are shown and under them the data comes as real facts. Here the process of appropriation of reality begins and subsequently will translate into prevailing knowledge in the organization. However, if facts are not being subject to process these remain as facts otherwise they becomes in information. This transformation process can be done manually or mechanically or with a programming language or any computer application. Computer objects are mediators between an individual and the knowing he wants to appropriate or to use.

Figure 3 – Building blocks of information



Source – Prepared by author.

The information is transformed over time (synchronic), becoming obsolete and by this mechanism, it is brought back into the world as a benchmark. But this new standard is different to the original features (diachronic). That is, having been processed it acquired or lost processing inherent elements to its origin. For example, the accounting information of a company generates with the records of daily operations in it developed. And it is from them that financial statements, become relevant for the time they are made, then they serve no longer, and become reference information are constructed, but this information is very different from the original facts. They have a format and a particular code, only understood by individuals familiar with them.

This will be a first level model in which the first transformations of its constituent elements are located. This determines a first opposition depending on the nature of the elements. The facts arise naturally in reality, while data and information are the result of a process performed by humans and the intermediation of any device or not, so they are artificial (natural/artificial). Most computer and robotic applications fall into this spectrum of events. In other words, this is the way of knowledge integration and its realization in the organizational world.

When processing is being performed through a computer object, conversion information is produced by the intervention of a computer language (three times source, object and executable code) and an application. Here, the events are grouped based on a matrix or backward algorithm as applicable (this last argument refers to the appropriate languages for creating expert systems). By employing this technological screen, information includes the criterion of computational objects designers participating in its construction. In this critical moment it is showed how knowledge get involved in the generation of other and how a formal-abstract instrument can acquire its materialization as object because of other (HUISING, 2014). So if both mechanisms overlap two forms of organizational knowledge realization are covered.

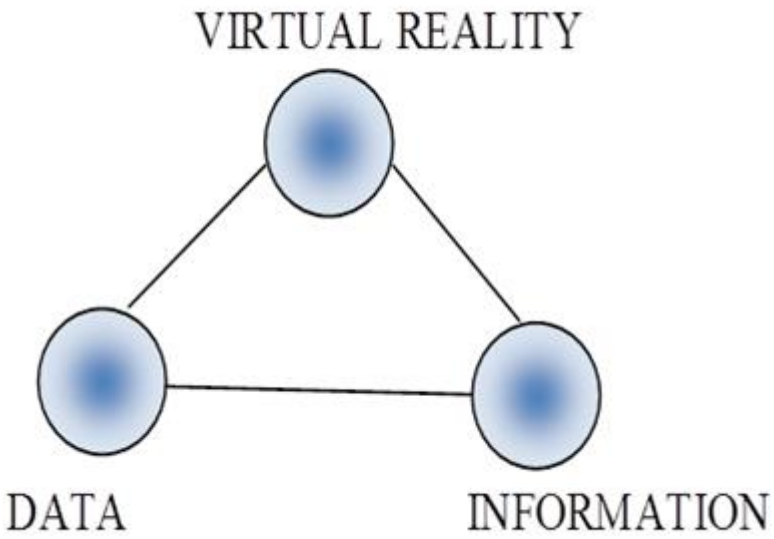
By continuing information processing analysis background is created in the model. Items are now grouped to form a virtual reality (was coined by Jaron Lanier in 1989 quoted by STEUER, 1992, p. 73). Virtual reality was opened with the advent of radio, television and in general with the use of the mass media. Because frequently by repeating a past that does not exist anymore a viewer or listener, as applicable, has to a new experience of virtual nature (see PASSIG and MILLER, 2014).

This second formation plane is incorporated to the elements located on the first. It means, first able a number of facts from reality must be collect. They were then subjected to a selection process transforming data into information subsequently. Since these last two elements a new virtual reality is constituted.

Relating to discipline computing data are ranked and grouped by an application program controlled by the user. In case of smart walls, the user may enter new data, such as those generated by the bodily movement and be caught automatically by the machine through a video goggle, electronic gloves or an electronic pad (LANIER, 1989; KRUEGER, 1992; SHERMAN and CRAIG, 2003).

Thus, information is condensed into a software application. And from this new information, which becomes a datum for the second level of analysis the process of building virtual reality begins. In the figure 4, it can be observed the process described, above, where the reality has been displaced; even as a benchmark for virtual reality.

Figure 4 – Constitutive Elements of Virtual Reality



Source – Prepared by author.

As discussed in preceding paragraphs, information is the result of data processing it has been and virtual reality is the condensation of a particular type of information. But once leaving this reality again becomes data to be processed and in some cases may require new data and information. These two plans do not define computing

totality. To achieve this goal it is necessary to incorporate a third group of elements as brokers and/or catalysts of information transformation process.

Before incorporating the third group of elements and to realize the vision of a whole it is necessary to assemble in one structure the two levels of the model as an approximation to the above stated relationship between reality and virtual reality. Along with comes out a circular trajectory spiraling it is depicted in figure 5 with dotted-lines described from the facts up to the constitution of the virtual computing reality.

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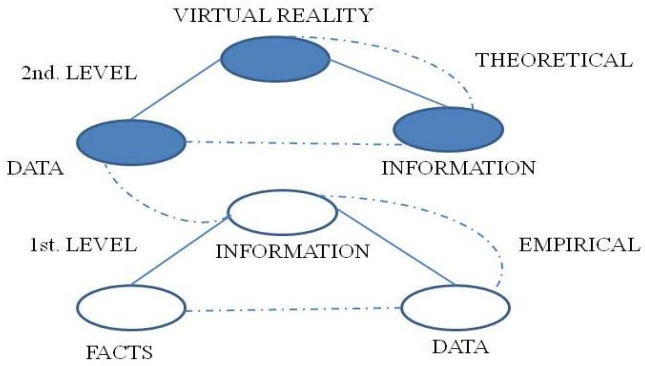
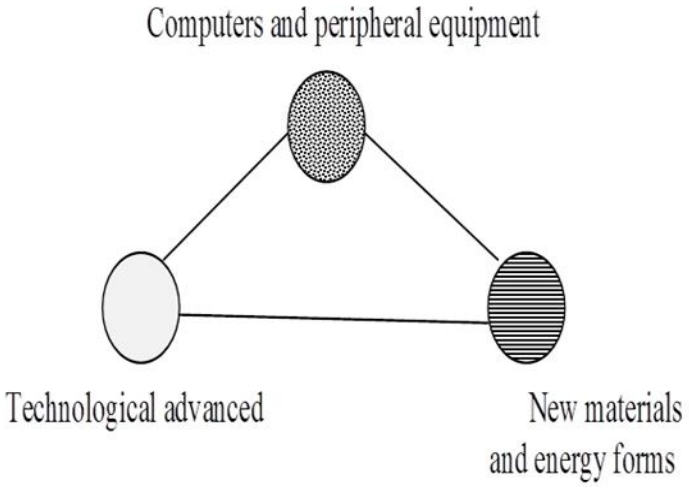
Figure 5 – Integrating two levels of information



Source – Prepared by author.

The hardware integrates the third group of all elements of information; these objects are involved as intermediates in the formation of a virtual reality based on actual events. The computer equipment introduces two new variables to the model: (1) technological advanced and (2) new materials (figure 6). These variables are exogenous to the model and incorporated to get the whole vision required by structuralism method.

Figure 6 – Variables that Drives IT Development



Source – Prepared by author.

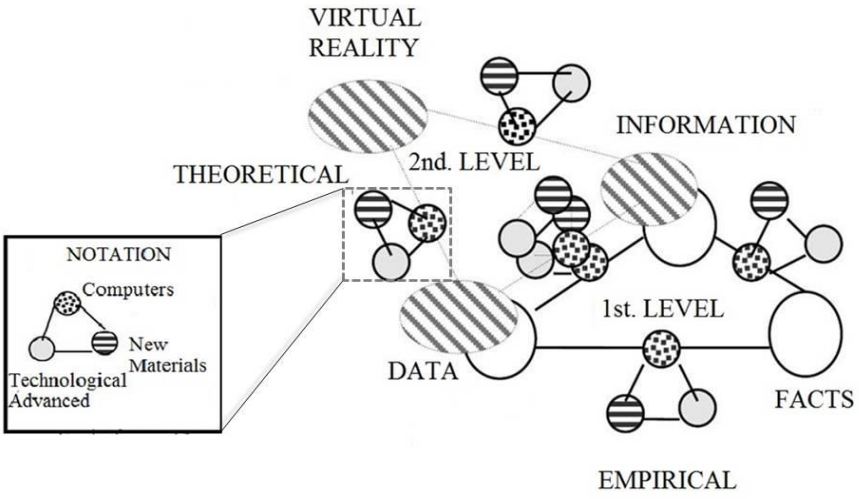
How do these elements interact with the other two elementary constituent structures corresponding to the information? A possible explanation to integrate the elements of the information totality is presented below the discoveries made by such technological advances impact among other items to new materials and new energy forms as integral parts of computers and peripherals.

As a result of studying this new structure starting with the corresponding vertex to the computers and peripherals is they drive the development of technological to initiate starting a new cycle. Now, if the exercise is repeated from the same vertex

but to the new material, these also drive technological progress by allowing the construction of both new equipment and experiments.

In the figure 7 with the elemental structure of the hardware, as a first approximation to the establishment of a model for the entire computer phenomenon we have integrated the two previous elementary structures corresponding to the information to a virtual reality.

Figure 7 – Integration of virtual reality and IT development



Source – Prepared by author.

The structures represented with small shaded areas symbolize the elemental structure of hardware and appear in the middle of the constituent leagues information and virtual reality. Mediation (software) in each case is done by computers and their peripherals (PEREZ, 2011). In sum, the entire computer phenomenon leads to a view-in many cases can be antipodal -from the facts to the integration of a new virtual reality.

Similarly, computer objects imposed on individual who operates a different pace and time from naturally play for their organizational activities. Therefore it appears to be a second operator, and before him must subordinate and even cede his living space. Thus a new human identity is shaped. The expression of these identities can be evidenced on the Internet. There are many websites to promote the interaction of people but often with different personalities to the real ones. A man can take a feminine role and vice versa (Avatar), in this form many virtual worlds that enable the creation and paradoxical consolidation of actual activities within a constructed artificial world.

CONCLUSIONS

In this article, we have here presented the causes and effects caused by computers advent in everyday life. To demonstrate how computers have affected the family and the individuals and species was necessary as a first step to distinguish objects and things. Subsequently through phenomenological, anthropological and organizational tools permanent characteristics of computer objects were determined. So that would evidence their essences.

This analytical exercise defined the process of information as *raison d'être* of computer objects. Thus the facts are transformed into data to integrate information. The information condenses a set of rules and criteria in its construction. These rules and criteria inhibit volitional capacity of subjecting them to a set of disciplinary practices and people control.

The subjection of human being to the disciplinary control process and is done through the computer objects. Operating these objects impose to the user's machine, timing, pace and preferences. Even, these objects require their own space and extensive maintenance. In parallel they have a symbolic function accelerating all bodies, messages, processes, in various senses.

Computer objects possess a different charm as they refers to a virtual energy, so that they are no more the receptacles of human appearance but the bearers of a dynamic image as well as of a capacity for knowledge generation. Energy of these modern devices sometimes is discrete others is continuous and adopt the devices an elliptical shape.

As if they return to the point they were originated but in a different analytical level. Also this recursive process conducted human being to a new reality of virtual nature. Consequently for humans, the computer becomes a second self one. The virtual world is not new is as old as massive media.

The facts as processed data culminate as information. This information is refined through a number of personal filters. That is, other person no the user decides what is important or not. In other words, every political, historical, cultural, fact is provided with a kinetic energy that removes it from its own space and drives it to a hyperspace where makes no sense, since it will never return. Consequently make decisions from the individual level to the society one is based on the standards set by the person who make the information process.

Finally the evolution of computer objects transited in less than three decades from fear and illiteracy technical is users to a proliferation in it society and its organizations. Driving to humans to be a kind of an appendix computer as once it happened with machines and assembly lines in massive production processes.

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The computer objects looking for their social and organizational implications

Abstract

To establish the characterization of the computing objects from a phenomenological, anthropological and organizational vision is the main object of this article. In order to reveal its essence that is what remains constant despite variations. The research

hypothesis is a set of individual, organizational and social changes wrought by the advent of computer objects to family, work and organizational environment. Also to specify its implications in today's organizations, mainly the information process.

Keywords

Things, object, phenomenology, computer

Objetos de computador para as suas implicações sociais e organizacionais

Resumo

O principal objetivo deste trabalho é caracterizar os objetos computacionais a partir de uma visão antropológica, fenomenológica e da teoria da organização. A fim de revelar a sua essência. Isso é para revelar o que permanece constante apesar das variações diferentes sob as quais se manifestam na realidade. A hipótese da presença de um conjunto de mudanças individuais, organizacionais e sociais investigação provocada pelo advento de objetos de computador em nível individual, família, trabalho, esferas organizacionais e sociais. Além de especificar as suas implicações nas organizações de hoje, particularmente as relativas ao processamento de informações.

Palavras-chave

Coisa; Objeto; Fenomenologia; Computador.

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Los objetos informáticos en busca de sus implicaciones sociales y organizacionales

Resumen

El objetivo principal de este artículo consiste en caracterizar a los objetos informáticos desde una visión fenomenológica, antropológica y de la teoría de la organización. Con el fin de revelar su esencia. Es decir revelar qué es lo que se mantiene constante a pesar de las distintas variaciones bajo las cuales se manifiestan en la realidad. La hipótesis de investigación parte de la presencia de un conjunto de cambios individuales, organizacionales y sociales provocados por la llegada de los objetos informáticos a los ámbitos individual, familiar, laboral, organizacional y social. Además de especificar sus implicaciones en las organizaciones de hoy en día, sobre todo las referidas al procesamiento de la información.

Palabras clave

Cosa; Objeto; Fenomenología; Computadora.

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