QUALITY AS A STRATEGIC SUPPORT FOR BUSINESSES

RESUMO
The modern enterprise is included in an environmental context characterized by high and rising levels of instability and very high degrees of uncertainty regarding the continuity of their activities. This climate is related to adverse environmental occurrence of certain events that make today's business environment much more volatile than in one relative closer past, in historical terms, namely: globalization, the advent of a new paradigm in energy and environmental rapid technological development, deregulation of economies and fierce competition in global markets. It becomes increasingly difficult to insert within the enterprise context a setting in which the uncertainty is the key attribute. Therefore, the modern company needs more of a strategic support that it makes possible the surrounding turbulent activity and enables it to achieve high levels of technological capability. As a direct result of this process there would have an increased productivity with a consequent increasing organizational competitiveness. Total Quality as a strategic variable of the basic organizations with regard to their performance in an environment characterized by instability increasingly apparent. Then it is proposed the adoption of a reformed concept of Quality as strategic support for organizations that are dealing with increasingly uncertain surroundings.

PALAVRAS-CHAVES: Quality; Production System; Strategy.

A QUALIDADE COMO SUPORTE ESTRATÉGICO DAS EMPRESAS

ABSTRACT
A empresa moderna encontra-se inserida num contexto ambiental caracterizado por elevados e crescentes níveis de instabilidade e graus de incerteza muito elevados no que diz respeito à continuidade de suas atividades. Este clima ambiental adverso está relacionado à ocorrência de determinados eventos que tornam hoje o meio envolvente empresarial bem mais volátil do que fora num passado relativamente próximo em termos históricos, a saber: a globalização, o advento de um novo paradigma em termos energéticos e meio ambientais, o acelerado desenvolvimento tecnológico, a desregulação das economias e a acirrada concorrência a nível dos mercados globais. Com isto, torna-se cada vez mais difícil a inserção da empresa no âmbito de uma configuração contextual em que a incerteza é o principal atributo. Assim sendo, a empresa necessita cada vez mais de um suporte estratégico que lhe viabilize a atividade em ambientes turbulentos e lhe possibilite alcançar níveis elevados de capacitação tecnológica. Como resultado direto desse processo ter-se-ia o incremento da produtividade com o consequente aumento da competitividade organizacional. É neste ponto que ganha corpo a ideia da Qualidade, isto é Qualidade Total como variável estratégica básica das organizações no que se refere à sua atuação em um entorno caracterizado por uma instabilidade cada vez mais notória. Propõe-se a adoção de um conceito reformulado de Qualidade, ou seja, como suporte estratégico das organizações, que passam a lidar com uma envolvência cada vez mais incerta.

KEYWORDS: Qualidade; Sistema de Produção; Estratégia.
INTRODUÇÃO

The enterprise/contemporaneous organization must seek for Quality, that is, the Total Quality and the excellence as the way for inserting and interacting with the environment, whether in environmental terms, or efficiency level (enabled by the technological component) or even in the social-political-institutional context. Furthermore, the enterprise must consider the existing energetic-technological-productive paradigm, as also its own self-shifting, in its seeking for Total Quality. In this sense, it must be observed that today one shifting stage is being lived, between the energetic-environmental paradigms, that is, there is a displacement from the Paradigm of the Fossil Fuels (which appeared with the Industrial Revolution in the 18th and 19th centuries) for the Paradigm of the Renewable Sources of Energy (which is initiated with the occurrence of the petroleum shocks in 1973 and 1979).

In fact, the rough increase verified through the petroleum price, basic energetic of the industrial modern societies and the energetic model which was installed mainly from the period after the Second World War, combined with the geopolitical component, showed the idea that scarcity (geopolitical, merchandising or physical) would begin to characterize that energetic source. This aspect, by itself, already introduces higher levels of instability/volatility into the surroundings where the enterprises/organizations work, starting to demand one new methodological/conceptual and one new strategic-organizational instrument which enabled the endurance within this scenery of total detachment with the relative safety/stability provided by the thirty glorious years of the capitalist economy after the Second World War.

Consequently, the enterprise is inserted in one increasingly volatile and uncertain environmental context, fruit of globalization (current stage of the capitalist world system economy), of the advent of a new paradigm in terms of energy and environment, of the neoliberal model, of the economies deregulation and the hard concurrence at the global trades level. With it, it is becoming ever more hard the insertion of the enterprise within the environment of a contextual configuration where the uncertainty is the main feature. Therefore, the organization needs, more and more, one strategic support which enables it to survive when facing turbulences and enables it to reach higher levels of technological capacity.

THEORICAL DISCUSSIONS

Quality and Quality Management

For Chiavenato (1992), Quality is closer related to productivity and both enable the enterprise competitiveness. The concept of Quality implies the conformity/suitability related to what the customer/user expects, then coming along one intern mobilization, and reaching it depends on one series of aspects besides the fixed assets investments or acquisition of determined items
machineries, equipment, technologies, etc.), mainly related to the organizational culture. Quality is not restricted to production and fabrication, instead it must be directed to all enterprises sectors, and that is, it must be covered by the own organizational dynamic within the context of one complex society and heterogeneous environment.

It is must be pointed out that the concept of Quality while Total Quality, was imported from the productive-industrial area, expanding lately, to the service segment. The proposal here introduced leads to one wider expansion of that current concept to the Total Quality one for the 21st century enterprise, that is, considering the transition of the energetic-technological-organizational paradigm, the environmental matter and the deep changes that have already begun to occur at the own world geopolitical configuration level, with the appearance on scene of the named emerging countries (or economies), fact that seems to conduct to the one new world order.

According to what is pointed out by Schaumann and Tupinambá (2009), the model of Quality Management is related to the ideal explanation and conceptualization of the excellent management, that is, of the paradigmatic model of management in terms of excellence, that is, from conquering and constructing one reality at the enterprise level. In fact, it seems that the positive aspect related to the Quality Management would be presented in individualism overcome, getting together the life mission and the organization mission, providing the overlap of the individual view of time and future over the time view and organization future and stimulating the acceptance of the organization values as being the individual values. The historical context of Quality Management in the organizations indicates one closer relation between this and the definition of a new Project which supported the recovering of Japan after the Second World War, being destined to it one fundamental role to the social reorganization of the work world and the improvement of quality in the Japanese industrial production. Then, the organizational supremacy over individual presents a positive and constructive significance. On the other hand, Quality Management could promote the individualism deconstruction.

According to what is mentioned by Coltro (1996), the Total Quality Management starts to be applied by the western management from the 80’s decade, being one response for the increasing competitive economic environment. The Total Quality Management considers the manufacture process as one potential generator of competitive advantage for enterprises and one real competitive motor for themselves. On the other hand, the Total Quality Management would reveal to the western managers that Quality impacts positively over the enterprises productivity, consequently impacting over the trade stability and expansion. The Total Quality Management model enables the implementation of the competitive strategies, like the products and/or services distinction. Indeed, the distinction can be related to the technological aspects, that is, the obtaining of competitive differentials due to the level of excellence existing in the way enterprises may come to manipulate the available technological universe. The competitive differentials become fundamental for the threaten caused by one increasingly instable environment, characterizing the international competitive scenario, where the western enterprises use the manufacture potential...
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and operations, what would conduct to a new approach related to the production systems and their management, configuring one new management model, named: Total Quality Management.

In one more direct way, it is registered that the new hegemonies (world, regional and sub-regional) would represent the transition of the current unipolar order to one multipolar order, what would reinforce the level of complexity of the surroundings in which the enterprise/organization is inserted, making the same seek for defining new instruments and methodologies of action, what would conduct to the spread of the Total Quality concept. In this way, Total Quality of Total Quality Management would be comprehended as one strategic, systemic and prospective adopted view.

With these three components, the enterprise/organization would reach the Total Quality on the 19th century, that is, would be equipped to face the great changes about to occur in this century, as also the stronger instability from that resulted. So, the trade of quality for organizations will incorporate that new and expanded concept, being, simultaneously, one threaten, opportunity and guide element for the business organizations trajectory along the current century.

Due to the deep transformations (economical, productive, technological, geopolitical, geostrategic and political-institutional) which are happening since the last three decades of the 21st century, the surroundings where enterprises are inserted in and interact with, is getting ever more complex, volatile and uncertain, what makes the Total Quality and the Total Quality Management one important referential for them, whether at their position level or also in terms of their objectives, or even due to their best equipping (more sophisticated instruments for management) to face the turbulence related to the organizations engaging.

Concerning the trade quality, it must be registered that in one world which configuration is increasingly complex and dynamics, what influences the occurrence of multiple and several interactions, the demanded levels of competitiveness are ever greater and the demands and pressures over the enterprises show an increasing intensity. Due to that, the Quality/Total Quality (Total Quality Management) tends to assume one critical role in the organizations life, becoming the base for their management process (management integrated system). The knowledge and tools related to Quality will start being adopted in the most several types of enterprises/organizations and the relationship «Quality/Economical-Financial Earnings» will end up imposing itself unambiguously. It can be unambiguously stated that Quality will permeate in such way the management of enterprises/organizations that the concepts of Quality (Total Quality) and Management will tend to be confounded (Total Quality Management), being possible to reach one point where only Quality will enable the management process of enterprises, once become one basic requisite to create and reinforce the organizational competitiveness.

With the competitiveness strengthen, within one context of strong changes and great alterations, marked by the energetic-environmental matter, the technological advances, the new economies emergence and the redefinition of the world hegemonies, the enterprises/organizations face one scenery of enormous complexity, one high instability level and strong competitive impact. For this, the enterprises/organizations have in Quality (Quality of Management) not only one
competitive differential, but before it the fundamental element for their sustainability and competitiveness. In other words, Quality will orientate ever more the strategic configuration and the business management process (System of Quality Management), acting as one self-orientation instrument. Quality, while trade referential, enables enterprises/organizations see their efficiency levels increased and, through certification, normalize methods and procedures, then assuring to them one greater competitiveness and trade performance, within one ever more changeable and instable environment.

In fact, within one wide and interactive perspective, it could consider Total Quality based on the self-process sustaining of organizations management, interacting both in one intense, dynamics, synergetic and virtuous, in such a way which makes them integrate as one only concept (Total Quality Management). So, the concept will be ending up being misunderstood and one enterprise/organization only will reach Quality incorporating, at one level of its process of management and the ambience of one interactive and integrated view, the strategy (strategic planning), the prospective and the systemic analysis. Therefore, Quality, in the 21st century, will be the fundamental instrument for the enterprises/organizations overtake the several vicissitudes (economic, financial, political-institutional, competing, geopolitical, environmental, etc.) related to the highly instable and volatile engaging, until one new model of regulation or one new configuration in terms of paradigm is defined.

Globalization and Economy

Globalization concept, many times uncertain or imprecise, other times definite and covered with a strong tenor of inevitability, has been used to characterize the occurred transformations, at the level of the world economy since the 70’s decade. Globalization, its concept and configuration is not an unanimous acceptance, due to the extremely optimist views facing the very strong perspectives critics (or even skeptical), which contest the fact of economy being really global, because the commercial, investments and financial flows would concentrate on the Triad limits (United States of America – Japan – Europe).

On the other hand, Gray (1999) affirms that the globalization process (trade capitalism spread) could be hampered by national aspects (cultural) in such way that the emergent capitalism of Russia, the Chinese economy and the Japanese corporations constitute entities of specific national (cultural) character, therefore not being liable of be thinned out within one kind of globalization process which follows the North American capitalism standard. Wallerstein (1998) highlights that capitalism is essentially one social historic system and that is configured in the capitalist world economy, that is, the capitalist economy always have had one world dimension (or at least without borders).

The fact is that due to the views and approaches controversies and multiplicities about globalization concept, as also of the real meaning that such word presents, it is worthy, here, under
Adda’s point of view (2004), according to what the multinational enterprises, investments promoters operate in regional poles (even if relatively wider), like the unit «Japan – Asian Tigers – Association of Southeast Asian Nations» for the biggest part of the investments of the Japanese enterprises, which, by the way, dominate the flows of the stranger direct investments in this area. So, at the level of the international economic space structuration, although not disregarding the aims to seek for wider regional blocks, it must be registered that the national instance keeps occupying one essential place in the contemporaneous world economy, not only due to the bonds forged by culture and history, but as also by the national State action. This is surely found many times limited by liberation and deregulation (which appears, in its turn, as globalization sub products). So, the State starts to act promoting the human resources and the enterprises logistic environment valuation, providing the favorable ambience for investment and jobs generation. Therefore, globalization cannot be thought as one state, but first as one process that can be detained at the Triad level, but also transcending it, embracing other world economy areas.

Strategy and Business Strategic Planning

Considering Patel’s conception (2006), the strategy would be the name which is given to the plans and actions through which certain actions are imposed to determined entities (organizations, ambiances and peoples), able to be applied to several spheres (negotiations, politics, society, economy, environment, technology, etc.). In fact, according to what is pointed out by Freire (2004), the word strategy derives from the Greek strategos, resulted from the combination of stratos (army) with –ag (lead), meaning, literally, the «army general´s function» (the troops lay out with the aim to reach the victory over the enemy). The concept of strategy restricted to the business/organizational environment, has frequently the connotation of one planning formulation which reunites, in one integrated way, the objectives, politics and actions of the enterprise/organization aiming to reach the success in their activities. In fact, according to Freire (2004), the strategy objective is the creation of one sustainable competitive advantage.

The first step in the strategy formulation consists of a strategic thought (business members´ strategic thought). Following comes the strategic planning, for which the Strategy Planning is elaborated, enabling, so, coming from one unit of integrated views of the organization (strategy) to the systematization of one unit of medium and long term actions and objectives: The Strategy Planning, according to what is highlighted by Freire (2004). However, with competitiveness reinforcement, the need to obtain higher levels of competitiveness and the most environment volatility, from the 60´s and 70’s, the strategic planning starts to suffer uncountable critics and the management concept is elaborated, since according to Nioche and Laroche (2000), the global process of strategy formation implies the pilotage of one continuous and interactive strategic process, with moments of reflection and definition of the intended orientations, but concerned of the higher level of uncertainty which permeates the reflections and results.
However, the strategic planning is yet emphasized by Porter (1991), that considers it one extremely valid instrument in terms of the industrial concurrence analysis, to the development of competitive strategies within industrial means (examining the following topics: fragmented industries, emerging industries, shifting for industrial maturity, declining industries and global industries), to the strategic decisions faced by the enterprises which compete within one only industry, to the strategy formulation within one enterprise particular environment and to the interaction between one industrial economy and business management, aiming promoting the development of one competitive strategy (aims and policies required to make them work). For Porter (1992), the strategic planning shows itself more feasible and realistic than the contingency planning (trying to test improving related to only one or two basic uncertainties, like the inflation index and the petroleum price), being reinforced by the scenarios use (macro economical) as instruments which could enable the comprehension, in one complete way, of the uncertainty strategies implications, mainly in the industrial scenarios.

With Porter (1992), it becomes clear the closer relationship between the planning strategy and the construction of competitive advantage founded on the competitive strategy, considering attractiveness in industry, its comprehension and the competitiveness behavior, concerned that the values chain (Project, production, marketing and enterprise/industrial organization product deliverance) is the basic instrument to diagnose and intensify the competitive advantage, aiming providing a method to identify differential sources of one enterprise/industrial organization and the facing factors. The strategic planning must not neglect the fundamental objective of the competitive strategy (the strategy in one business unit is the way for the competitive advantage, where, in its turn, will determine its performance, in the way to reach the competitive advantage.

Otherwise, for Jarillo (1989), the strategic planning is constituted of one unit of formal activities directed to produce one strategic formulation and supporting one methodological base for the process of strategic drawing, once it establishes one series of stages in the sense of configuring the strategy, what leads to the establishment of one formal system of strategic planning, what, in its turn, makes the strategy awareness permeate all the levels of the enterprise/organization), assuming one great relevance role in the consecution of the sustainable competitive advantage, rising as the last necessary element to the elaboration and application of the strategy in effective terms. Continuing this analysis, it is observed that one system of strategic planning excessively complex can become one malign element to the enterprise/organization, once this begins to be self-centered instead of be attempted to the moves of its competitors. In fact, the great paradox is that the strategic planning can act like one mechanism which deteriorates the response capacity of the enterprise/organization in long term leading far for the creativity loss, fact that in some great large scale enterprises/organizations, keeper of sophisticated systems of strategic planning.

Though the recognition of the restrictive aspects of the strategic planning, considering as acceptable and realistic many of the critics to that directed and recognizing that passed from
triumph to decline within one not so long period, Jarillo (1989) observes that that one does not diminish, in one absolute way, its need, highlighting that without a detailed Strategic Planning (covering all the enterprise/organization) it is practicable impossible to obtain a sustainable competitive advantage. So, according to this line of thought, in practice, one formal method of planning is crucial for the strategic planning drawing and configuration. In other words, however flexible the process of strategic planning, the Strategic Planning will always be covered of a significant level of formality. Then, according to this view, the solution for the problems presented by the strategic planning does not mean that it should do without, but first focusing on it appropriately. Therefore, the strategic planning (resulted from the following evolutionary sequence: budget, financial control and long-term plan) has the Strategic Planning as a product and environment which ends up leading the enterprise/organization to reach one sustainable competitive advantage (adequate focus of strategic planning). In fact, all and any system of strategic planning, however simple, is extremely utile to the enterprise/organization, providing them the required methodological support to the strategy implementation and operationalization. The strategic task cannot be implemented without the draw of one system of strategic planning, therefore, the focus really strategic of the planning process must be defined, then. So, there is no sense in discharging the strategic planning from the enterprise/organization life.

In fact, according to what is highlighted by Porto (1998), the strategic planning, having as central tool the Strategic Planning, it is found in the modern methodologies directed to support the searching and reaching of one favorable competitive advantage, which act over the enterprise/organization (environment tendencies, environment attractiveness, main competitors, etc.), indicating threatens and opportunities which must be considered, as well as the deficiencies and weaknesses which must be corrected or even eliminated. So, Strategic Planning cannot be any way considered one passive or reactive tool, but first as one active (or proactive) managerial instrument, which promotes the continuous and active adaptation of the enterprise/organization facing one constant changeable engaging. On the other side, the Strategic Planning must recognize the different roles assumed by the enterprise (corporative level, businesses level and functional level) integrating, harmoniously, the efforts resulted from the interaction of the several organizational levels. Then, the strategic planning, while one management method presents one wide and varied issues agenda, where the following are highlighted: to deal with the complexity, to work with the uncertainty and to make the useful choices.

Therefore, the strategy, mainly when treating the Strategic Planning, it is the basic element for seeking the organizational Total Quality, once it acts to mitigate the strong impacts came from one ever more complex and with higher levels of volatility surrounding, assuring it the demanded competitiveness to operate successfully, within one more competitive and instable environment. The strategy, made through the strategic planning, is one crucial added value for the enterprise/organization, acting so as one improver element of the Total Quality (through conquering one sustainable competitive advantage). In its turn, the strategic planning, far of being
out of date, acts as one leader element for the organization to implement the strategy, to obtain one sustainable competitive advantage and reaching the Total Quality.

Quality/Total Quality has just been left aside as one strategic variable (or a variable to be considered by the strategic planning) to be positioned in center of the strategic planning, being about to constitute as one enterprise strategy face the higher levels of instability/volatility for mark the engaging environment of the businesses organizations, in such way that position them vis-à-vis to the engaging threatens, enabling them to overtake their weaknesses, reinforce and take advantage of their strengthens and define theirs comparative advantages. Hence, Quality/Total Quality is confounded with the own strategy of the enterprise/organization, anxious to face the instable/adverse engaging, to mitigate/reduce the higher levels of uncertainty and enables it for new routes in the seeking or one better performance. The Quality/Total Quality becomes in fact the strategic base of the enterprise/organization, if not even its own strategy

**Systems of Production**

Due to what is marked by Perales (2011), the systems of production can be classified in different ways, fact that highlights the complexity of the own process of production and nature of the technological aspects and elements related to them. On the other hand, the study of systems of production, that is, to consider the systems of production as phenomena of study object and comprehend them in such way in their whole dimension/totality, will require their types’ elaboration and classification, modalities and existing variations, as well as their characteristics in terms of organization, process technology and production engineering. The detailed study of one object/phenomena will demand a frequent elaboration or one classification of their types/modalities or existing variations. The main objective of one classification is to help understanding the study object, in such way that relationships between one series of elements direct or indirectly associated with the study object are enabled to be established, namely: observed inherent characteristics, proper analysis tools, typical matters, particular solutions, and other categories with their proposed classes and subclasses. Considering the systems of production as categories of extreme complexity, either in terms of structuration/organization, or also at the technological level, or even at the process level, will need enumeration and distinction of the groups of planning and production management techniques, adequate for each particular kind of system, in such way that enables the rationalization/choice at the decision making process concerning each circumstance.

System of production concept is related to modalities of processes at the manufacture/services level. In fact, one system of production correspondent to one unit of interacting parts, provided with one common objective and which act accordingly to the intermediate resources, raw materials and inputs, in the sense of conducting to one final result (output) within the context of one process of transformation configured and visualized by itself. So, all and every system of production is composed by three types of variables, namely: inputs,
processes and outputs. The inputs comprehend the following headings: capital, materials, equipment, technology and knowledge, while the variables related to the process cover the planning of the product (or of production), the materials administration, the production, the labor training/capacitation, etc. So, the outputs concern the elaborated product or the services properly outlined, formatted and ready to be provided, which will lead to results, that is, profits or losses. The first will be able to be reinvested in the own process of production or delivered to the holders of the ownership of the means of production, whether tangible (installations, machinery and equipment) or intangible (general technology and particularly software), while the second ones will be able to be assimilated by the own body of the enterprise/organization, shared between the partners/shareholders of the same according to the respective participation in the capital or shared at the binomial level State/society or even in the ambience of the stakeholders. In other words, the systems of production define the kind of process used in the manufacture of the products/services, constituting, in fact, in the way of organizing the production of goods/services.

On the other hand, according to what is affirmed by Correa (1993), will be from the 80’s decade that the importance of the flexibility articulation with the competitiveness of the enterprises/organizations, notoriously those ones of manufacturing base structure. There are several factors which explain the emphasis of flexibility/competitiveness, being marked, however, the strong and increasing turbulence of the environment in which the organizations operate (increasingly intense and competent concurrence, increasing variety of products, increasingly short term life products, gap between the producers’ capacity and the level of the offered services, turbulence of trade for producers/suppliers etc.

In fact, according to what is registered by Correa (1993), what it seems to be is one limited situation (or extremely limited) of predictability and stability, which turns flexibility into one fundamental element for reaching one good increasing capacity of response facing the changeable trades characteristics. On the other hand, there is the extremely accelerated development of new process technologies, in such way that the index of technological development can even have overtaken people’s capacity of using plentifully the technologies or plentifully comprehending their transformed potential. In this way, it would have as one probable result one significant grade of underuse of new technologies within one business context considering the efficiently conversion of the potential flexibility in one real flexibility.

When making approach about the matter of flexibility of technological resources of production, that is, of the technological resources related to one determined process of production, Correa (1993) marks that the understanding of it passes through the comprehention of the concept of scale economy. In fact, there will have one scale economy when the marginal cost associated to the elaboration of one determined product is decreasing, that is when the total costs of production increase is proportionally smaller than the produced quantities increase. So, the occurrence of the scale economy is related to the fixed costs in the production process, that is, to the production fixed costs, like, for example, the costs of machinery/equipment preparation, which appear
normally as function of preparation time. The costs of machinery/equipment preparation are constituted of great important and higher relevance factor when the flexibility of determined equipment is considered. In fact, the smaller the relevance of the costs of machinery/equipment preparation, less important will be the scale economies.

With this, according to what is pointed out by Correa (1993) the small lots production becomes as economic as the great dimension lots one. This makes it possible to produce smaller quantities (per product), considering a wide range of different products at costs comparable to the costs of production of large quantities (per product) of a kind or limited quantities in terms of types of products. So, once the required levels of capacity of the equipment are assured, the reduction of preparation times of machinery is one of the most evident ways to reach higher levels of equipment flexibility, at least in terms of response capacity. Having said that, it must be signaled that the reduction of machinery/equipment preparation times (the required time for replacing the production of a product or piece to another) can be achieved through flexible automation (like numeric control machines), that is pointed out as the main form to reach higher levels of equipment flexibility, as also by the approach based on method (organization, work methods and rationality) and on use of conventional equipment what is linked to Japan thought.

When the systems of production issue is approached, considering their technical-operational characteristics, their technological configuration and their rationale at the process level, as also their transformations and changes, it is important to frame the subject within the context of the industrial revolutions context which marked the capitalism trajectory since the 18th and 19th centuries. Therefore, it is suitable the record that the expression Industrial Revolution is used to refer to the English industrialization (original industrialization), which happened in the 18th century. However, considering what is signaled by Cazadero (1995), the industrial process generated by the today named developed economies, parts of the dynamics nucleus of the international economic system, is one subject of higher importance, so much so that that the literature related to the development issue name those countries as industrialized. But, when Industrial Revolution is considered, it must be considered, according to what Cazadero does (1995), the occurrence of not only one, but of three industrial revolutions. The English Industrial Revolution (EIR) of the 18th century is the First Industrial Revolution (FIR). The Second Industrial Revolution (SIR), that started between the 21st century and the beginning of the 20th century, already showed signs of exhaustion in the 70’s decade of the same century. On the other hand, the Third Industrial Revolution (TIR) is the one currently lived, having as base one very distinct technological nucleus. SIR as well as TIR is one higher process of world reaching than FIR, where each of them generates one deep gap between their related societies. In fact, each industrial revolution produces one competitive processes reordering, fruit of innovation and technological advance which conduct to changes in the production function.

In the FIR, the steam engine must be marked, mainly from the moment that the mechanical resourcefulness begins to use iron for their machinery-tools manufacturing, and textiles, at the
level of consumption goods. In the SIR, according Cazadero (1995), it had its start between 1895 and 1914, period which corresponds to the occurrence of the organizational revolution of the USA industrial structure, the industrial units grew in size (great enterprises vertically integrated), the process of money concentration (though joints and incorporation) was accelerated, the administrative and technical staff importance was increased and the Taylor’s methods of factory work industrial organization appeared. The SIR was marked by the following activities branches: electricity, automobile production, oil, chemistry and household utilities. Concerning the TIR, this starts in the 70’s decade of the 20nd century, with the final of the glorious 30 years of the capitalism and the appearance on the scene of the new Technologies (informatics, telematics, robotics, genetic engineering, biotechnology, nanotechnology, etc.), begin characterized by the changes acceleration. Similarly to what happened in the FIR and the SIR, the TIR implies the formation of one unit of technological innovations which serves it as nucleus to integrate one productive system qualitatively distinct of the stages which came before it, with deep impacts of the new scientific and technological base over the social structure which internalize them, as well as over the world economic system, that will end to be changed to be adequate to the needs of the new stage of productive base evolution (CAZADERO, 1995).

According to what is registered by Cazadero (1995), the TIR technological base must be observed, where the available knowledge are wider and their interaction with the social variable are covered of one uncertainty higher level. In fact, what is verified is that all the industrial revolution is simultaneously, one technological revolution, being registered the incorporation of technical progress at the productive base level. The TIR, in its turn, it is the most technological of the industrial revolutions and maybe this is the reason why is most corrected to name it the Third Industrial and Technological Revolution (TITR).

In this sense, the distinct systems of production which are connected to the configurations/outlines presented in the midst of each industrial revolution emerge within the context of the technological arrangements and the ambience of one dominant energetic base, engendered by the current industrial revolution and that simultaneously stimulates and makes that viable. In fact, besides one determined energetic base, there is one technological revolution articulated with one industrial revolution. In fact, systemically and interactively, it can be considered that the distinct industrial revolutions (simultaneously technological revolutions) basically are what we could name Energetic-Environmental Paradigms. In fact, the paradigm is not only energetic or only environmental, because the interaction between the energy and the environment is notorious, presenting one clearly systemic-interactive character.

In this way, it is observed that the Fossil Fuels Paradigm started with the FIR (coal), increasing and being wider with the SIR (oil appearing). In the period after the Second World War, oil displaces coal and is converted into the leader energetic within the SIR context. On the other side, considering the SIR ambience the nuclear energy appears and during the TIR/TITR, natural gas starts to be used intensively; one fossil fuel, but relatively less polluter than oil and coal, in
transport sector environment healing, electric energy generation and industrial processes. By the way, natural gas is seen as one improver energetic of products/processes.

According what is signaled by Costa and Rodrigues (2010), the oil shocks in the 70’s decade of the 20th century shows that the oil paradigm starts to give signs of depletion. Then, one greater awareness formation related to the problems linked to Ecology conducts to the increasing approach of the themes related to environment. It can be seen that the environmental matter cannot be treated separately from the energetic matter. Therefore, it can be considered that today one transition from the Fossil Fuels Paradigm to one Renewable Energies Paradigm is being lived.

In fact, the transition is not immediate and yet will take some decades. However, the alternative energetic sources, along this period, will have their level of participation in terms of energetic-productive base increased, being able even to evoke to determined non-renewable energetic resources, like natural gas, less polluter than oil and its derivatives and improver of processes and technologies. So, the paradigmatic transition (from fossil fuels to renewable sources of energy) will be marked by the energetic new sources introduction, by its living and interaction with the traditional energetic sources and one increasing mix of energetic sources, that is, strategic management of energetic matrix.

The energetic-environmental paradigm displacement, according to what is marked by Costa and Rodrigues (2010), since takes some (or even several) decades to be effected, will represent the appearance on the scene of a whole immense source of technologies for final use and process. With this, accountable and interesting technological-productive arrangements will be likely to be implemented. Hence, using the Brazilian example, the transition of the Fossil Fuels Paradigm (oil) to the Renewable Sources of Energy Paradigm (highlighting biomass) will be intermediate by natural gas and interaction/combination of fuels from the two current paradigms.

Therefore, there is one space within the context of developing countries, for the significant range of options of energetic alternatives which overtake, for example, the other choice possibilities (sun and wind, for example) based mainly on biomass. On the other hand, this is more flagrant in the case of the great developing economies metropolises and megalopolises (São Paulo, Mumbai, Calcutta, Mexico, etc.); the new energetic-environmental paradigm passes through the economical-conservationist (re)use of the urban solid residues from recycling and also through the water/sewages treatment, that besides contrary to the consumer-waster logic and the hue of environmental degradation of the transato paradigm, contributes significantly, for the energetic-alternative production, deeply collaborating for the establishment of auto sustainable cities/metropolises (one of the pillars of the new energetic-environmental paradigm. On the other side, at the level of the energetic-environmental transition, the conservation and rational use of energy gains fundamental importance.

Inclusively, energy conservation must be considered as one energetic resource, in the new energetic-environmental paradigm as also in the stage of inter paradigmatic transition. For Costa (1990), the energy conservation/rationalization must be seen under two basic views, namely: the
energetic sources and consumption segments. Energy conservation and rationalization makes articulation beneath other aspects with the consumption habits changes, one of the basic points of the new energetic-environmental paradigm, able to enable the overtaking of the high model of energy consumption.

FINAL CONSIDERATIONS

The deep world financial crisis in the ending of the first decade of the 21st century, which is affecting substantially the real economy, provoking one great economic crisis, appeared initially due to the crisis of the North American property market trade, in 2007. The greatness of this global crisis has been presenting ever more challenges for capitalism as one development model to be followed by the countries as known by us since the 18th century, and of one highly consumer lifestyle since the 20th century. One presented question is that this crisis would give signs of capitalism final while one system of production of high consumption of natural and energetic resources to attend to one unlimited society demand.

This development and lifestyle model which was birth in the 20th century and it is kept in the first decades off the 21st century, are long term unviable for the own planet survive. It is necessary one alternative model based on the responsible consumption with environmental sustainability, stimulating the technological innovation and scientific progress ethically for the human societies’ life quality enhance. One new economy reason based on the trinomial of low carbon emission, the use of renewable energy sources and investments in technological innovation (research on sustainable technologies) is the key for the future people’s development.

Therefore, founding the businesses management on the wider concept of Quality/Total Quality (which must be seen as one basic strategic component, many times is confounded with the own strategy) means inserted it in the context of the new paradigm configured by TIR/TITR, that, in its turn, while not being totally affirmed, within one context marked by one low grade of trades and economy deregulation, is characterized by one strong instability, where three words can define it in this moment, namely: change, instability and volatility.

Therefore, the new paradigm which came along due to the TIR/TITR brings one high level of environmental instability which directly affects organizations and their management process. The changes brought by the TIR/TITR are much deeper than those related to the FIR and the SIR, once its occurrence happens within one intense process marked by the introduction of great technological innovations, provoking great impacts over the different sectors of the contemporaneous societies. The change is deep, total and accelerated.

However, it can be discussed that the paradigm configured by the TIR/TITR will demand, sooner or later, any kind of regulation and coordination that allows enterprises, as also different contexts (economic, political, social, institutional cultural technological, environmental etc.) where those are inserted in, to have one minimum grade of stability for managing and assimilating
changes with capability. So, in the lack of higher levels of State regulation and intervention, yet considering volatility, the enterprises must consider Quality/Total Quality as one anchor and basic strategic element, notoriously in terms of costs control and reduction for production/manufacture (management of the systems of production), with impacts over the levels of productivity and competitiveness.

REFERENCES


