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of Production and Management in the 21st Century**

Luciano Ferreira da Silva
PHD Student and University Teacher
Pontifical Catholic University, PUC-SP / University Nove de Julho
Brazil

Karina Ribeiro Fernandes
Academic Coordinator
University Nove de Julho
Brazil

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Athens Institute for Education and Research
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece
Tel: + 30 210 3634210 Fax: + 30 210 3634209 Email: info@atiner.gr URL:
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Luciano Ferreira da Silva
PHD Student and University Teacher
Pontifical Catholic University, PUC-SP / University Nove de Julho
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Karina Ribeiro Fernandes
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Abstract

This study aims to discuss the challenges of managers in dealing with the paradoxes of the 21st century. It is noteworthy that authors such as Naisbitt (1993) and Morgan (1997) highlighted that society and organizations are made up of paradoxical realities. In the production of goods and services to the paradox issue also shows present, because the evidence in the evolution of mass production for a customized production, and a higher concentration in the production of services, outlines that it is necessary to adopt new perspectives, but also resume the concepts and individualized production of the early twentieth century practices. Mechanization of production processes and implementation of new technology caused them to be adopted new perspectives for the management of organizations, including placing on the agenda of talks executive discussions regarding social and environmental responsibility (Eikhof, 2014; Lantz; Hansen, Antoni, 2015; Cairns, 2015). As the methodological procedures, this article adopts conceptual theoretical analysis procedures using a critical interpretation research as a hermeneutical exercise, through the critical review of the literature on management and production with a qualitative approach. This approach allowed the use of inter-subjectivity and reflection in building arguments based on criticism of theoretical and conceptual approaches developed during the construction of the thinking of the administration. As for the results, we can said that the contemporary impact in the process of management is more complex, because paradoxes arise as the humanization of work in foreseeable and mechanized processes; greater empowerment of relationship, but also leads to greater control of the workforce; learn to compete and collaborate at the same time, etc. These findings allow the manager to adapt to a new reality, but it is also a challenge. Those who perceive this reality, even paradoxical, will be able to explore the changes and capitalize on the limitless opportunities generated by them.

Keywords: Management; Production; Paradox.

Introduction

The technology innovations that considerably enable interaction and communication influenced our contemporary society, including the relationship between production and consumption (Nasbit, 1993; Barua & Lee, 1997; Davenport, 2013). Technologies such as robotics in manufacturing plants and microcomputers were some of the reasons that influenced the changes wanted by countries, businesses, and individuals.

However, it is emphasized that until almost half of the 20th century, great part of the world's population did not have easy access to this new reality, especially in those countries considered industrially late or underdeveloped. In this manner, from late 20th century and early 21st century the world entered a globalizing process that allowed both the knowledge of these new technologies and access to more current processes to develop new skills.

The context change, therefore, is the result of a progress encouraged by new processes and behaviors. The system of craft production was changed for a factory system, and the use of low-skilled labor was replaced by better qualified individuals. The training applied to virtually train people is now focused on developing skills (Ramos, 1981; Morgan, 1997; Rice, 2013).

Furthermore, regarding consumerism, it is worth saying that the production oriented to meet basic or subsistence needs has to be directed to more ephemeral and hedonistic needs of society (Bauman, 2013), which caused the production of large amounts of standardized products (Mass Production System) to be replaced by leaner systems (Womack, Jones & Roos, 2007; Eikhof, 2014; Lantz, Hansen & Antoni, 2015).

In accordance with this context, discussion on sustainability and social responsibility also became part of the agenda of manufacturers and consumers (Eikhof, 2014; Cairns, 2015). This fact is also promoting a change in the behavior of individuals in the role of consumers, who become increasingly aware and demanding on their preferences.

It is worth noting that the social context in which the organization is inserted does determine how decisions about the use of the means of production and supply of products practices will be adopted. Thus, the requirements on good management practices of the various functional areas of business are increasingly influencing the decision-making of managers (Brown, Squire & Blackmon, 2007; Clegg, Hardy & Nord, 1998; Cairns, 2014).

Thus, the reality presented in this early 21st century demands for changes of practical and conceptual orders in the way we think management. Therefore, this conceptual paper is aimed to discuss the challenges of managers in dealing with the paradoxes of the 21st century.

As stated by Lewis (2000), something may not be presented paradoxical separately, but when compared to other situations or realities, it can be seen as unreasonable or even absurd. Poole & Van de Ven (1989) and Jules & Good (2014) reinforce that the complexity of contemporary reality puts individuals and organizations in multiple directions, and the ambiguity and uncertainty are the outcome of interaction among the individuals.

It is worth noting that authors like Nasbit (1993) and Morgan (1997) highlighted that society and organizations are constituted of paradoxical realities. Nasbit (1993) described some events that created paradoxes such as the evolution of technology especially in telecommunications, which in turn stimulated the globalization but also caused many to behave in a tribal fashion. He also discussed issues concerning the size of institutions, nations, and economic blocs, and that the biggest is not necessarily the best or the strongest one.

Morgan (1997), in turn, exposed an organizational reality in that transformation and stagnation are presented on the same side of a situation. Additionally, organizations still coexist with an environment built in the mechanistic paradigm, but with an increasingly need to use more organic practices. In this manner, control and autonomy, rigidity and flexibility live altogether.

This paradoxical environment is the result of a natural social flow that dialectically develops a reality in which several factors converge and diverge, then giving meaning to society itself, that is, to social life.

As for the methodological procedures, this theoretical and conceptual paper adopted analysis procedures using a critical interpretation understood as a hermeneutical exercise by means of a critical review of the literature on management and production with a qualitative approach. This approach allowed the use of inter-subjectivity and reflection in building arguments based on the criticism of theoretical and conceptual approaches developed over the construction of the thinking of management.

Therefore, reflection and interpretation of social reality as perceived were confronted with theoretical ideas in order to formulate propositions and develop assumptions that allow the discussion on the thinking of management in the 21st century.

A Paradigmatic Society Incorporated of Paradoxes

An Urge for New Paradigms

The abstraction of reality builds explanations and justifications to be a reference for the decision-making for both individual choices and decisions on the fate of a company or a Nation (Weber, 2009). This perspective of abstraction can be described as a paradigm that gives grant for the organization of society (Burrell & Morgan, 1979; Morgan, 1997). Following this line of reasoning, we can say that the prevailing paradigm in the management from the first Industrial Revolution on was rationality, and used to describe the operation of an organized system in a linear, predictable and controllable manner (Serva, 1997; Godoi, Bandeira-De-Melo & Silva, 2010; Ramos, 1981).

Morgan (1997) points out that rationality as a mechanistic paradigm presents a reality that works as precise as a clock, while we point out Adam Smith and the example of the pin factory, and also Taylor (time and motion), as well as Ford (interchangeable parts and production line) and Weber (bureaucracy), for whom rationality appropriated the discourse on the best practices to manage an organization.

Based on the perspective that equip the means of production in a labor-saving way, researchers and practitioners of management came up with theories and processes towards a functionalist view. We can say that time and space have become controllable and definable factors not only in the production system, but for society as a whole. The predictability of the activities once caused a false sense of control to individuals and managers.

Womack, Jones & Roos (2007) describe that the pinnacle of the American system of production happened in the first half of the 20th century, and from this point of view the companies were conducted in such a way that standardization and control have become axioms, as well as goals to be achieved.

As stated by Duguay, Landry & Pasin (1997), four main characteristics subsidized system of mass production: i) reduction of cost for high-volume production; ii) efforts to innovate focused on the production system; iii) employees were confined to the working environment for carrying out their tasks under tight control; iv) the different actors in the production chain were treated as opponents in order to create conflicts to obtain the best agreements for the company.

In this context, we can say that subjectivity has become an anomaly within organizations, especially after the Industrial Revolution, when man was seen as a rational being, the *homo economicus* (Motta & Vasconcelos, 2004). This abstraction of the individual explains selfish and utilitarian behavior. However, since the mid-twentieth century, such viewpoint is questioned and opposed by the *homo social*. The latter is a collective individual who aims to satisfy their biological and emotional needs.

For Clegg, Hardy & Nord (1998), organizational studies represent a search field of contestations. Thus, the paradigms presented to explain the reality of organizations find opposing ideas. Poole & Van de Ven (1989, p.562) describe that "the presence of contrary or contradictory assumptions, explanations, or conclusions is often viewed as an indicator of poor theory building." Thus, we can say that organizational theories are constructed dialectically and that paradigms constituted meet an opposition aimed to validate it or deny its consistency.

Besides, it is necessary to understand the scope limit of a theory. An example of the opposition to rationality lies on the ideas of Ghadiri & Davel (2006), who state that individual and company do not constitute a natural system once the subjectivity of the individual often departs from the organization's identity. In addition, the identity should be seen as an ongoing process that develops and institutionalizes from the relationships and conflicts between different players. However, reality social is not explained only on the basis of subjectivity.

In short, we can say that the rational-functionalist paradigm was fostered initially by the need to organize the factories and subsequently by the urge of a production system to achieve the greatest amount of products with minimal resources used (Morgan 1997; Clegg Hardy & Nord, 1998). Thus, mass production became a "mantra" for managers, and then the practices applied by Toyotism presented as a better solution to the competitiveness of enterprises.

Therefore, the production system that stimulated vertical and rigid structures to meet the demand for large quantities of standardized products now had to adapt to the Toyota Production System, or the Lean Production (Lantz, Hansen &

Antoni, 2015). Moreover, as highlighted by Cairns (2014), managers have to take into account the use of natural resources in their production system. We emphasize that the positive correlation between the increased use of natural resources and damage to the planet cannot be maintained for it jeopardizes the whole society in the future.

In this context, researchers and practitioners debate management, and it is necessary to highlight the ideas of Brown, Squire & Blackmon (2007), who state that isomorphism is a consequence of the search for successful models without proper questioning of its adoption. The label of best practices in management often hides an inert behavior of organizations and individuals towards changes in an outdoor environment. We can infer that this isomorphism takes the actions of managers almost to a bandwagon effect.

However, innovation and a more intense use of Information and Communication Technology (ICT), and globalization becoming an objective to be achieved by the companies, made contemporary society more complex. In addition, other factors also influenced how global changes demanded by the development of the so-called third world countries now categorized as emerging. We can also say that climate changes that can affect the very survival on Earth considerably influence the macro system, which includes the production and consumption.

Silva, Guevara, Fernandes & Rodrigues (2014) points out that one of the challenges of the 21st century is to develop the ability of a company to compete and cooperate at the same time. Ghadiri & Davel (2006) and Djabi, & Chanlat (2014) highlight the need to think about the humanization of the organization based on the best understanding of the subjectivity reflected in the organization's behavior.

Nevertheless, the search for sustainable processes is now an important part of the management agenda (Cairns, 2014), and we can say that transformations over time also require a change in perspective to understand contemporary society.

Paradoxes of the Contemporary Society

A paradox is presented as opposed to an established reality; a lack of connection with a speech or a situation. Paradox is the contradiction (Morgan, 1997; Jules & Good, 2014). Lewis (2000) explains that nothing can be paradox in isolation, but when compared to other situations or realities, it may be seen as unreasonable or even absurd.

Jules & Good (2014) describes the complexity of contemporary reality puts individuals and organizations in multiple directions, which leads to decisions about ambiguous, uncertain and volatile reality. Poole & Van de Ven (1989) point out that the paradox is inherent in social life, or in the interaction between individuals and the relationships within and outside organizations.

Paradoxes are not unusual or difficult to find. The paradox of the problem, or a paradoxical situation, is that the researcher or the practitioner of management can be so attached to their paradigmatic fact that they are not able to see present events or anticipate trends. Thus, the perception of reality around is built on their model, and used as a transforming lens that can also blind them.

We can say that the 21st century presents society very different from what was thought in some theories and management practices. We now use the computer and the internet for a myriad of activities. In the period that followed this evolution, there was also the virtualization of business, products and jobs. Moreover, we highlight that the world becomes smaller when we deal with social interactions, especially by the more intensive use of ICTs. These changes in contemporary society have significantly transformed the way we produce and consume goods and services.

Thus, we emphasize that different contexts require a review of thinking and tools. Production and consumption need to reinvent themselves to meet the demands of this new reality where the virtual overlaps the physical; tangible is replaced by the intangible as a priority in relations and individual and corporate activities. Thus, the old paradigm of time-space becomes a paradox in the management of companies in the 21st century.

Davenport (2013) points out that the tasks in the company are more and more collective and virtual. The physical process is replaced by virtual, and this is one of the major factors that stimulate home-office work. Davenport, Thomas & Cantrell (2012) point out that not only in form but also in content, the tasks of the employees have changed a lot. These authors also report that employees from the knowledge age work in a flexible and collaborative manner. Thus, we have to understand that the reality presented in organizations in the 21st century is paradoxical because the idea that the working time of the employee is equivalent to productivity is absurd in many cases.

Rice (2013) describes productivity as a relation between inputs and outputs that takes into account a social and technical system. We can say that this was especially true in the perspective of mass production, where productivity gains derived from the repetition of some trends and the use of some inputs (Duguay, Landry & Pasin, 1997; Womack, Jones & Roos, 2007).

In this manner, the prescription for good management was to keep workers tied to a job position on full control. However, this reality is no longer valid; production often occurs by the use of cognitive ability of employees to develop some process or activity to solve problems. It is not about physical force bringing competitive advantages since these are present in the ability to think, create and communicate an organization.

Barua & Lee (1997) and Davenport (2013) outline a type of organization where ICTs work synergistically with collaborators. Moreover, their use allows gains in quality of life and a behavior directed toward empowerment. Morgan (1997) presents a situation where the employee has to work with minimum specifications. In many industrial activities in this early 21st century, individuals already know how to do and have the ability to operate, or the autonomy to pursue such capacity. In this perspective, employees need goals, not foremen.

Thus, we can say that time and space are no longer as relevant in increasing the productivity of a company as they were in the past. The living room of a collaborator can be a workplace to be contemplated in the planning of the structure of the company. Public spaces such as restaurants and food courts become great

options for meetings. Verticalization preached over time is now shown a paradox of modern society.

In a nutshell, we have to use the skills of employees to perform tasks properly, remembering that the common reality to the vertical production paradigm must use skills for this purpose. However, for a society built in a contemporary perspective where the virtual and the intangible become watchwords, we have to recognize the paradoxical relationship present in the dissonance of discourses and practices in management.

Thus, in a more pragmatic way, to recognize paradoxes can develop new paradigms. This dialectical situation allows the evolution of questions and thoughts that contribute to the development of management in the 21st century.

Concluding Remarks

As for the search results, contemporaneity impacts in a process of more complex management. Thus, there are paradoxes or paradoxical situations such as the humanization of work in predictable and mechanized processes. We can also notice an organizational relationship of greater empowerment of the workforce, but which also leads to greater control by the individuals themselves.

Learning to compete and cooperate at the same time is a challenge for companies, managers and consumers. The company built in the last three centuries virtually begs for changes influenced by the events of the past three decades of innovations. Working, eating and surviving become topics to be discussed within and outside the company, at any organizational level. The separation that previously existed between work and personal life is a paradox at the beginning of the 21st century, especially for the younger generations.

Issues about making a competitive product, the use of natural resources and quality of life can and should be included in the strategic planning of a company. Therefore, the idea that a successful organization based on the maximization of profits by the smallest possible use of resources is counter-productive: the human being seen as a cost center and the consumer as a passive agent in the market relationship is paradoxical.

These findings allow the manager to adapt to a new reality, but it is also a major challenge. Those who perceive this new reality, even paradoxical, will be able to explore the changes and capitalize on the limitless opportunities generated by them.

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