

Reading on technology and knowledge management

Reading on technology and knowledge management

ISBN 978-973-752-801-8
Editura Universităţii „Aurel Vlaicu” Din Arad

EDITURA UNIVERSITĂŢII
AUREL VLAICU
A R A D

**BIBLIOTECA NAȚIONALĂ
A
ROMÂNIEI**

CIP nr. 24789/ 13.12.2018

Către

EDITURA Editura Universității "Aurel Vlaicu"

Vă trimitem :

Descrierea CIP a Bibliotecii Naționale a României

AYDEN, CEM

Reading on technology and knowledge management / Cem Ayden.... - Arad :

Editura Universității "Aurel Vlaicu", 2018

ISBN 978-973-752-801-8

005

Birou CIP,

Florina Cojocaru

Notă :

Caseta conținând descrierea CIP a Bibliotecii Naționale a României va fireprodusă conform originalului pe verso paginii de titlu a cărții respective.

Redactarea descrierii CIP în afara Bibliotecii Naționale a României intră sub incidența Legii dreptului de autor

READINGS ON
TECHNOLOGY AND KNOWLEDGE
MANAGEMENT

Edited by
Cem AYDEN, PhD

CHAPTER 1
“Policy making actors and organizational structure in determining science technology and innovation policies in selected countries”
Fethi ASLAN Abdunnur YILDIZ
CHAPTER 2
“Innovation and knowledge-driven regional development in the context of science and technology parks and research and innovation strategies for smart specialisation (RIS3)”
Aiday KASMALIEVA Erhan AKIN
CHAPTER 3
“From human to machine creativity: artificial intelligence”
Hasan UZUN
CHAPTER 4
“Knowledge, basic concepts and approaches”
Cem AYDEN Haydar BALO
CHAPTER 5
“Electronic commerce in the process of information society”
Muhammet DÜŞÜKCAN Sezin AÇIK TAŞAR
CHAPTER 6
“Electronic commerce in the context of globalization and taxation problems”
Hifzullah KUTUM Abdunnur YILDIZ
CHAPTER 7
“Opinions and expectations of members of accounting profession about digital accounting a research in Malatya province”
Ahmet Fethi DURMUŞ
CHAPTER 8
“Examination of accounting information system within the framework of technology, information and innovation”
Özcan DEMİR Meltem GÜL
CHAPTER 9
“Evaluation of the clustering concept in terms of technology, information, and innovation”
Özcan DEMİR Eray Ekin SEZGİN
CHAPTER 10
“New age, new encountering: cyberloafing in organizations”
Seda İŞGÜZAR
CHAPTER 11
“Evaluations on causes and outcomes of organizational myopia”
Gürhan YILDIZ Erkan Turan DEMİREL

CHAPTER 11

EVALUATIONS ON CAUSES AND OUTCOMES OF ORGANIZATIONAL MYOPIA

Gürhan YILDIZ*

Erkan Turan DEMİREL**

ABSTRACT

In this study, terms in literature which might be same with the organizational myopia have been explained. Then, factors causing organizational myopia and behavioral biases have been stated. Organizational myopia has been explained with examples concerning NASA, an organization, with a high intellectual capital. Subsequently, it has been given place to evaluation of organizational myopia in terms of the internal component (normalization of deviance, the culture of production and structural secrecy), risk and uncertainty in non ergodic systems, the levels of organizational myopia, the term positive myopia. Finally, the results of organizational myopia have been expressed with a general evaluation and a hypothesis has constructed.

Key Words: myopia, blindness, organization

1. INTRODUCTION

Organizational myopia can be described as a condition of imperceptions of risks, threats, opportunities, problems and transformations, which, under normal conditions, are perceivable in external and internal environments, due to the effects of certain factors, such as orientation and habitual focus on a single area as a result of over exposure to a condition, with individual and organizational factors(culture, leadership type, structure of sector). From this definition, it is important to take into account that in organizations, managers and workers who are constantly exposed to specific phenomena may have higher levels of organizational myopia.

Despite the latest interventions, it seems unavoidable that the silos seen among research disciplines and between clinician and researchers, social scientists and biologists, doctors and nurses, and public sector and private sector precipitate the process leading to myopia.

In the review of the literature, there were a number of studies found examining the relation between organizational absorptive capacity and structural organicity. Absorptive capacity refers to the ability of an organization to recognize, identify, acquire, disseminate, transform and exploit externally generated valuable knowledge. However, there were no studies found in the review that examined organizational myopia in terms of the mechanical and organic structure of organizations.

CONCEPTUAL FRAMEWORK

2. Organizational Myopia

In the limited number of studies within the relevant literature, there is no conceptual consensus on the subject. For example, certain studies used the concept of myopia (Catino, 2013; Levinthal and

* Firat University, SSI Department of Health Administration, Ph.D. Student, ELAZIĞ gurhan5319@gmail.com

** Ph.D.,Firat University, Faculty of Economics and Administrative Sciences, ELAZIĞ edemirel@firat.edu.tr

March, 1993; Ebrahim, 2015; Sato, 2012), while others used blind spots, tunnel vision (Mason, 2005; Leonardi, 2011) or silo syndrome (Serrat, 2010; Altınay et al., 2012; Seymen et al., 2016).

Could the Soma mine disaster and failure that occurred in the grip of the global economic crisis have been prevented? It is likely that myopia, a syndrome that strictly limits the capacity of organizations to distinguish signals of effects of their own decisions and threats or opportunities is the common factor behind these clearly different phenomena. In the literature, organizations are addressed as organic systems which interact with their environments per the requirements of the opened system concept. Furthermore, as a social asset consisting of individuals who interact with each other, the environment is evaluated according to the frame of mind and perspective of individuals. In this process, as time passes, organizations cannot perceive all the opportunities, threats and risks brought about by transformations in the internal and external environment, and therefore may become blind to them. This condition is referred to as organization/organizational myopia or alternatively as organization/organizational blindness or shortsightedness (Seymen et al., 2016). As an example of organization myopia, we can take the phenomenon of how a person gets accustomed to any fragrance after smelling it for a while, but then after some time, he/she is not able to notice the smell any longer. In organizational myopia, managers, when facing opportunities and threats, routinely believe that by applying the same decisions as they had applied before they can achieve the same success. The cause of this behavior can be attributed to negligence of the effects of changes in the external environment at the decision stage. According to the relevant literature and fieldwork that has been conducted, organizational myopia can be described as a situation of imperception of risks, opportunities, threats, problems and changes that emerge under normal conditions due to acclimatization, conformance, routine, and individual and organizational factors (culture, leadership type, sector structure, etc.) (Seymen et al., 2016). Employees that have grown accustomed to applying certain working styles and practices in an organization for a long period of time may not notice problems, risks and opportunities, and even if they do notice them, they may hesitate to duly evaluate them so as not to disrupt the routine (Altınay et al., 2012:15). After a given order is established in organizations, employees get used to this order and manner of functioning. They wish to maintain this order, and as time passes, they adopt the impression that it is this order that allows them to do their work very well. They readily adopt this sense because they have become an expert in their work or, in other words, they have become self-acting. Organizational myopia may result in ignorance and failure to recognize opportunities, or metaphorically speaking, in viewing the floating ship as an indication of success (Döş, 2013: 151).

From analysis, four sub-dimensions of organizational myopia have been identified, namely, type of character, degree of routinization, business structure and structure of organization. In a comparative analysis of organizations, it was reported that workers within the healthcare sector had a greater perception of organizational myopia than workers in the energy sector (Seymen et al., 2016). There are only a limited number of studies examining organizational myopia, and those that do deal with the subject of myopia examine it in terms of learning myopia, innovation myopia, moral myopia and management myopia. Moreover, there is an insufficient number of studies that approach the subject of organizational myopia within the scope of all its dimensions, the pioneers responsible for developing the concept and all of its outputs, and there is no such study that has been applied in Turkey. Organizational Myopia, written by Maurizio Catino, is the only scientific study that addresses this subject in an expanded frame.

Organizational myopia, or organizational blindness, can be explained through marketing myopia, a term coined by Levitt, who stated that sectors which can't keep pace with sustainable growth will fall into organizational myopia, a situation that arises from operating with sector blinders and misidentifying business and customer needs (especially possible future changes). Levitt lays the burdens of this failure on top management, to whose shortsightedness is spread to the sector, which inevitably leads to marketing myopia. For example, the railway sector falls behind the road transportation, air transportation and telecommunication sectors because businesses in the railway sector completely failed or were too late in seeing themselves as part of transportation. To cite another example provided by Levitt, it has been well-documented that when Hollywood was about to be defeated by the television industry, it entered into a restructuring process by foreseeing the future

possibilities and thereby preventing the possible collapse of Hollywood that would likely have occurred if they had suffered from organizational myopia. In addition to these examples, Levitt pointed to the recession and depression seen in the electricity sector as a result of failure to anticipate the growth of renewable energy resources, to the grocery sector's failure to foresee the popularity of grocery store chains, and to the dry cleaning sector's inability to foresee the value of using safe chemical agents as examples of myopia or blindness. He emphasized that being a sector that uses advanced modern technology does not mean that the sector will not fall into myopia. From this point of view, the main factor responsible for the railway sector being left behind the other sectors is not lack of opportunities but rather, managers' deficiency in courage and imagination. Levitt proposed the following factors as constituting myopia (Levitt, 1960; 2004):

Shadow of Obsolescence: Recognition of one's own power and not facing threats from a serious replacement product can jeopardize sight.

Self-Deceiving Cycle: This occurs when a company places inordinate confidence in its own growth on account of its failure to properly assess the market. There are four conditions that usually precipitate this cycle: "The belief that growth is assured by an expanding and more affluent population; The belief that there is no competitive substitute for the industry's major product; Too much faith in mass production and in the advantages of rapidly declining costs as output rises; Preoccupation with a product that lends itself to carefully controlled scientific experimentation, improvement, and manufacturing cost reduction".

Population Myth: The belief that profits are assured by an expanding and more affluent population.

Asking for Trouble: Producing primary products efficiently instead of generic products; for example, producing petroleum efficiently but neglecting to produce derivative products of petroleum.

The Idea of Indispensability: Believing that a main product is unique and not substitutable; for example, the petroleum sector believes that petroleum can't be substituted.

An Uncertain Future: Failure to anticipate future uncertainties and consequently, to take positions to hedge these uncertainties, or failure to solve challenges related to uncertainties.

Product Pressure: Focusing on production according to a belief in the continuity of certain factors, such as market response to product(s) and the use of mass production, is expected to satisfy demand and reduce unit cost.

Product Provincialism: The advantages of mass production acts as a screen concealing activities and consumer-driven developments.

Creative Destruction: A condition in which customer's demands are satisfied in a more effective, comfortable manner. Lack of sight under these conditions will pave the way to myopia; for example, the purchase of petroleum depends completely on sustaining the comfort of the consumers and securing the use of their rights. Research concerning market strategies within the petroleum sector, like reduction of buying intervals and cost of petroleum demonstrates that representatives of the sector do not suffer from myopia.

Dangers of R&D: Top management can fall victim to these dangers when they become wholly transfixed by the potential profit that can be realized as a result of technical research and development, rather than seeing technical research and development as the key to innovation and securing future success.

Marketing Shortchanged: The neglect of marketing and market research, which results in marketing being seen as a stepchild, so to speak.

The Beginning and End: The belief that initial sector penetration depends on patents, products, raw materials or sales techniques instead of the needs of the customers.

The Visceral Feel of Greatness: A condition of acting on greatness/ power instead of following and adapting to the market's requirements. It is a kind of power poisoning.

2.1. Causative Factors of Organizational Myopia

Based on the conceptual framework given above, the causative factors of organizational myopia can be ordered as shown below (Döş, 2013: 152):

- Closed to transformation: Failure to see opportunities, or when seen, failure to react lest the routine will be disrupted.
- Closed to inspection: Inspection, defined as control of whether activities of execution are done according to developed plans, orders and policies, is an important activity and process for organizational administration in terms of identifying faults and/or failures.
- Self-satisfaction in doing a job very well: A worker who believes that he/she does his/her job very well can become closed to development and desensitized to the environment, both of which lead to organizational myopia.
- Weakness of environmental relations: An organization whose relations with its environment is weak can experience difficulties in discerning risks and threats.
- Closed to workers' ideas and opinions: In organizations that do not have a participative management understanding, there may be low motivation among workers and organizational myopia.
- Excessive commitment to maintaining status quo/ normative behavior: Excessive commitment to normativeness in organizations operating in an environment that perpetually goes through changes causes organizational myopia.
- Autocratic management: The more repressive and authoritative the top management is towards its employees, the more difficult it becomes for employees to express themselves and to produce innovative ideas.
- Organizational conflicts: Conflicts in organizations can interfere with healthy monitoring of the environment, which can result in blindness.
- The lack of organizational vision and goals: Vision and objectives enable employees to stay dynamic and analyze the environment and to see opportunities and risks; without these, the opposite situation can emerge.
- The 2010 oil spill on the Gulf Coast is just the latest disaster that highlights a general problem: Decision makers often regard catastrophic events as below their threshold of concern until they occur. This seems to be true for all decision makers – business professionals, homeowners and public officials in charge of minimizing disaster damage (Kunreuther et al., 2010).

2.2. Behavioral Trends in Organizational Blindness

What explains our unwillingness to look ahead and act? Findings from lab experiments and field studies by psychologists and behavioral economists reveal a variety of biases that cause decision makers to ignore both the likelihood and the potential consequences of large-scale disasters (Kunreuther et al., 2010).

Misperceptions of the risk: We often underestimate the likelihood and consequences of extreme events, either by failing to imagine the scenarios in which they might occur or by simply assuming that “it will not happen to me.”

Ambiguity of experts: Estimates of the likelihood and consequences of low probability events often differ, given the limited historical data and considerable scientific uncertainty. Decision makers often choose to use the estimates from experts that provide justifications for their preferred actions.

Short horizons for valuing protective measures: Businesses (and households) look only a few years ahead (if not just months) in deciding whether to spend money on loss reducing measures, like strengthening structures to reduce hurricane damage. As a result, risk-reducing measures that could be justified financially when comparing costs and expected returns over the long run are often rejected.

Disregarding interdependencies: The value of some investments for disaster protection depends on the willingness of others to undertake parallel actions. For example, bank regulation or anti-terrorism measures are far less effective if other nations aren't on board. Thus, individual countries or companies are reluctant to be first movers for fear that they will waste political and financial capital.

Failure to learn from past disasters: There is a tendency to discount past unpleasant experiences. Emotions are high when we experience a catastrophic event, or even view it on television or the Internet. But those emotions fade, making it difficult to recapture these concerns about the event as time passes.

Mimetic blindness: Decision makers often imitate the behavior of others without analyzing whether the action is appropriate for them. By doing what other firms do in their industry (or imitating the behavior of friends and neighbors), decision makers can avoid the psychological stress of thinking independently. There is also a tendency to favor the status quo – to not change current practice.

In addition to behavioral biases, there are economically rational reasons that firms and individuals in hazard-prone areas don't undertake risk-avoidance measures. Consider Monkey See, a hypothetical firm in an industry in which its competitors do not invest in overcoming myopia.

2.3. Myopia of an Organization: NASA and the Space Shuttle Accidents

Catino describes two events related to NASA that serves as examples of organizational blindness in his book "Organizational Myopia" published in 2013:

At 11:38 AM (East Coast time) on January 28, 1986, the Challenger space shuttle, launched from Cape Kennedy by NASA, exploded. It was a tragedy, not only for the loss of lives but also for the heavy blow dealt to NASA and the space industry, as it shattered the myth of technological omnipotence. The presidential inquiry commission led by William Roger verified that the technical cause of the accident was the breaking of the O-rings. The O-rings join segments of the solid rocket boosters (SRBs) and prevent leakage of hot gases during takeoff. The accident was caused by the fact that one ring had not held and the released fuel gas had, like a blowtorch, perforated a component, triggering a sequence of events that brought about the accident less than two minutes after the launch. The technical design of the shuttle provided for two gaskets, guaranteeing safety through redundancy, so that if the first O-ring was damaged, the second would nevertheless halt the escape of the rocket fuel. But the cold weather of the preceding days, particularly the night before the launch, had hardened the rubber of both rings, eroding them (Catino, 2013).

NASA personnel were aware of the possible consequences of coldness on the O-rings. On the evening prior to the launch, people from NASA and SRB manufacturer Morton Thiokol (the company that had manufactured the O-rings) participated in a teleconference to discuss whether to postpone the shuttle launch. During the teleconference, Morton Thiokol engineer Roger Boisjoly argued that the shuttle's O-rings might not perform well at low temperatures (Catino, 2013).

They concluded that it was best to postpone the launch until environmental conditions had improved, with a higher external temperature. But the NASA management expressed a great deal of perplexity about the postponement, emphasizing the fact that several delays had already taken place. Moreover, they maintained that no formal unequivocal correlation had been established concerning the relationship between external temperature and the grip of the O-rings. Morton Thiokol had at first opted for a postponement, but in the end, its management did not recommend against launch: the company's vice president stated, "we have to think like managers and not like engineers" and said he was in favor of the launch. The Morton Thiokol's official position had therefore changed, and the launch for the day after was approved.

The checks carried out on the shuttle during the night and in the early morning resulted in a further delay, but, at 8:30 AM, the astronaut crew entered the pilot's cabin and at 11:38 AM, Challenger took off. The explosion occurred seventy-two seconds later. The commission of inquiry decided that the responsibility for the event was NASA's, because it had launched the shuttle under conditions that were not safe.

The tragic decision was motivated, according to the commission, by the consequences, both economic and in terms of visibility, which additional delays in launching would have had on public opinion, among the mass media and politicians. The commission verified that the O-ring problem was not a new one and that a substantial amount of evidence about it had existed since 1977, but NASA had decided to go ahead with the missions while seeking a solution at the same time. In addition, the commission underlined how the doubt displayed by Morton Thiokol had not been sufficiently taken into account. It also emphasized the improper decision-making process and how the middle-ranking hierarchy of the Marshall Center had not adequately informed the NASA management about the O-rings' technical defects. The commission concluded that if the technical cause – the first-order cause – lay in the defects and the erosion of the O-rings, the real causes were due to the economic difficulties and management aspects that had resulted in a violation of safety standards. This point of view was greeted with wide consensus and was in almost complete agreement with what newspapers and other mass media had been maintaining for a long period. What had in fact taken place was effectively demonstrated by the famous American physicist Richard Feynman, who, during a press conference, placed a piece of O-ring rubber in a glass of zero-degree water in order to show how the rubber lost its elasticity due to the cold – a characteristic that NASA should have been very familiar with (Catino, 2013).

In 1986, the pressure on NASA and the expectations were extremely demanding, as was the launch schedule forecast for the Challenger shuttle. The previous launch had been delayed: the timetable was changed three times, and the management had second thoughts at the last moment. The Challenger launch had itself been delayed four times. NASA needed to demonstrate its efficiency and find a way to balance its budget. The basic accusations levied against the NASA chiefs were that they had given in to the pressure of productivity and had knowingly carried out a launch in dangerous conditions in order to keep in line with the pre-established program. There emerged a clear position of moral condemnation towards the top level of management at NASA, as it was they who were responsible for an accident that could have been avoided. The accident further demonstrated the banality of bad organization by a small group of unscrupulous people, namely the NASA and Morton Thiokol managers, bureaucrats without a conscience who had sacrificed safety in the name of efficiency and visibility (Catino, 2013).

But is this really how it was? How could a complex organization, with such a high degree of economic and human resources, with the best minds available concentrated within the Marshall Center, be so blind as to commit such an evident and enormous mistake (if mistake indeed it was)? As George Hardy, NASA's Vice Director, said, "I would hope that simple logic would suggest that no one in their right mind would knowingly accept increased flight risk for a few hours of schedule" (Vaughan, 1996, p. 49).

Perhaps the explanation in the newspapers and the description of the commission of inquiry (the Rogers Commission) had ignored some deeper aspects of the problem. Perhaps it was not simply a matter of the violation of standards by a reckless group of directors and technicians, even though this was the main official conclusion.

After the Challenger tragedy, NASA adopted the ritual measures typical of post-accident situations: those held to be responsible for the event were removed, and some procedures and decision-making processes were partially revised. No modifications were made, however, to the structural conditions and environment external to NASA, relating to the organizational field. Political pressure, objectives of efficiency in conditions of scarce resources, and the culture of the organization itself were never called into question. The organizational and cultural factors, later analyzed by Diane Vaughan (1996), which were the basis of the Challenger accident, were left unchanged, and seventeen years later, these conditions would be recognized as causative factors in the Columbia accident. In fact, on January 16, 2003, history repeated itself. The Columbia shuttle was launched into space: the 113th flight in the Shuttle Space Program and the 28th for the Columbia. Eighty-one seconds after the launch, when the shuttle was at a height of approximately 65,000 feet and a speed

of around 2,500 kilometers per hour, a fragment of foam insulation broke off from the shuttle's bipod ramp and hit a tile on the left wing's thermal shield, causing a small breach in the thermal protection system. The incident was undervalued by NASA and no proposal was put forward to remedy the situation (Catino, 2013).

On February 1, 2003, returning to Earth after a sixteen-day space mission, Columbia disintegrated over the skies of Texas. The seven crew members died, and the shuttle, which had cost almost \$2 billion, was destroyed. The breach in the thermal protection system had allowed red-hot air to penetrate the insulating shield and progressively melt the aluminum structure. This had weakened the structure, caused the craft to lose control, broken the wing, and finally brought about the collapse of the shuttle itself. There was no possible way for the crew to survive. The fate of Challenger had depended on a rubber gasket (the O-ring) ruined by use and the cold; the fate of Columbia had been decided by a small piece of foam that had damaged the shuttle's cockpit. The disastrous consequences of both these events were not foreseen (Catino, 2013).

By their very nature, high-risk technologies are exceptionally difficult to manage. Space shuttles are highly complex, composed of more than 2.5 million different pieces and more than 1,000 valves. NASA itself is also highly complex, a matrix organization employing over 24,000 people. Numerous organizational units spread over a variety of sites and complex channels of information and communication. To some extent, it could be regarded as a bureaucratic and hierarchical organization. Immediately after the event, NASA set up the Columbia Accident Investigation Board (CAIB), formed by members of NASA, aviation experts, an ex-astronaut, some civil investigators, and two professors of engineering. The main questions to answer were why had the accident happened, who was responsible, and what had to be done (Catino, 2013).

Over the next seven months, the CAIB staff, consisting of more than 120 people, worked with approximately 400 NASA engineers, examining thousands of documents and interviewing and listening to the testimony of hundreds of witnesses, until, on August 26, 2003, the board made its report on the accident public. Why had NASA not foreseen the technical problems of the O-rings and the detached piece of foam, events which had already occurred more than once? Why had NASA undervalued the information immediately following the launch of Columbia relating to the conditions of the thermal shield? The two cases reveal profound similarities, despite the different types of technical faults. They also demonstrate NASA's myopia in predicting the events caused by a series of organizational failures, as is maintained in the investigation report concerning Columbia (CAIB 2003). The myopic analysis of the Challenger accident, wholly focused on individual responsibility, had not taken into account the organizational and cultural factors behind the disaster, meaning that these remained unaltered within NASA's organizational system up until the Columbia disaster. The CAIB concluded that "both accidents were failures of foresight ... the causes of the institutional failure responsible for Challenger have not been fixed and if these persistent, systemic flaws are not resolved, the scene is set for another accident" (CAIB 2003, vol. 1, p. 195). There were echoes of the Challenger event in what happened to Columbia. Starbuck and Milliken (1988) maintain that the decision to launch the Challenger was made based on the success of previous launches rather than on a systematic evaluation. The past established the premise of the future, and each launch reduced, in the perception of the decision makers, the possibility of negative eventualities in following launches. Diane Vaughan (1996), after studying this accident for nine years, analyzing thousands of internal documents, and listening to recordings of the teleconferences, was able to demonstrate that, in contrast to what the commission had reported, the accident was in reality one that conformed fully to the regulations and was not a violation of existing safety standards. The paradoxical conclusion was that the Challenger disaster was, in fact, caused by respect for the regulations, and not by their violation. There could have been no more worrying a conclusion. As it will be discussed later, Vaughan maintains that the accident was caused by perfectly rational actions, and not by errors or violations, or by irrational, impulsive, self-

interested, or amoral acts. The decision to launch Challenger was made in conformity with the decisional model adopted by NASA. It was therefore that cultural and organizational model, established progressively over time, and not individual people, which had triggered the event (Catino, 2013).

Vaughan (1996, p. 410) shows "how disastrous consequences can emerge from the banality of organizational life" and the explanation for all this may be found in three elements intrinsic to NASA: (1) normalization of deviance, (2) the culture of production spread throughout the institutional environment, and (3) the structural secrecy of the circulation of information deriving from the vast and complex organizational articulation. Each of these aspects is worth looking at more deeply (Catino, 2013):

2.3.1. Normalization of Deviance

It is necessary to address matters at an organizational level to identify what Vaughan (1996, 2005), in relation to the two accidents, calls normalization of deviance. "The explanation of the Challenger launch is the story of how people who work together develop models that make them blind to the consequences of their actions" (Vaughan, 1996, p. 409). The parameters of risk evaluation defined these situations as not alarming, not dangerous. Danger signs, in other words, became routine: they occurred so often that they became a sign that the machine was operating as expected (Vaughan, 2005). The result was the production of a cultural belief that the problems did not constitute a threat to the safety of the flight, a belief that was reinforced by the successful return of every mission. Flying with defects became normal and acceptable, rather than deviant, which is how it appeared to those outside NASA after the accidents. It is an example of the mechanism of normalization of deviance (Catino, 2013:42).

2.3.2. The Culture of Production

While the normalization of deviance concerns the micro-level of analysis, the culture of production involves macro and interorganizational aspects. The first consideration to make is that NASA, though to a large degree autonomous, operates in a world conditioned by various kinds of pressure deriving from the US Congress's control of funding. Political evolution had progressively brought about a change of priorities in how NASA acted: the launches, from purely scientific missions, now had to take into account business requests and opportunities. The Columbia mission was, state Cabbage and Harwood (2004), far more a matter of politics than of pure science (Catino, 2013).

2.3.3. Structural Secrecy

The third element in the explanation of the two disasters can be found in a characteristic of the NASA communication system that contributes to the normalization of deviance, a way of not seeing: structural secrecy. With this term, Vaughan (1996, 2005) refers to a situation in which the structures of an organization and their regulatory relationships impede the awareness and understanding of what is happening, obscuring the seriousness of the problem from those who are responsible for supervision (Catino, 2013).

2.4. Risk and Uncertainty in Complex Non-Ergodic Systems

A common problem in many social sciences, just as in the theory of organizations, is the absence of *cardinal laws* comparable to those of physics: this is due to the *non-ergodic* nature of the world (North, 2005). An ergodic science is founded on a structure with a constant and therefore timeless basis. A non-ergodic world, in contrast, is a world in continuous transformation. As Davidson (1991, p. 132) states, an ergodic stochastic process implies that "the average calculated from past observations cannot be persistently different from the time average of future outcomes."

2.5. Dimensions of Organizational Myopia

Analyzing the concept of organizational myopia only as a whole with team workers will lead to errors. It is a multiplier for the individuals forming the organization, the structure of the organization, and the level of myopia in the area or environment in which it is engaged. The details of the different dimensions constituting the concept of organizational myopia are given below.

2.5.1. Individual Factors Dimension

This dimension is related to personality types and socio-psychological states of individuals' demographic situations (education, age, work experience, etc.) (Catino, 2013). Levinthal and March (1993; 101) concluded in the study they conducted that organizational learning had a mitigating effect on three types of organizational blindness. For example, the level of education of individuals will have an impact on the level of organizational myopia that they will experience. Individuals who are continually studying, exploring current knowledge and open to learning will be less exposed to organizational blindness than uneducated individuals. Similarly, it is expected that the person's age and work experience will also have an impact on the level of organizational myopia. For young and inexperienced employees, as compared to older employees, both the level of perception and the desire to learn will be higher. These individual advantages will help to safeguard them against organizational myopia. Tonbul and Sağiroğlu (2012, 317) suggested that working in the same institution for many years caused "mental fatigue and management myopia".

2.5.2. Organizational Structure Dimension

This dimension is related to culture, organizational learning level, type of capital, leadership model, hierarchical structure, business processes, boundaries and distance between units, and coordination within the organization (Catino, 2013; Levinthal & March, 1993, 101). The more disciplined and closed systems the organization has in communication with each other, the greater the degree of exposure to organizational myopia (Serrat, 2010; Döş, 2013). In addition, according to the study results of Nural and Çıtak (2012), besides stability, myopia and inefficiency can result when managers always manage in the same institution.

2.5.3. Sector Structure Dimension

This dimension concerns the type of industry (private-public) in which the organization is engaged, the level of competition in the sector, the business culture it has, the relationships, whether dynamic or stationary, with other organizations, the environment and the sector in which it is engaged (Catino, 2013). For example, if the sector, such as the airlines industry, in which the company is operating is dynamic and there is clear competition, it will have to continually analyze its surroundings in order to maintain its organizational life and therefore be less likely to experience myopia. On the contrary, organizations that operate in a traditional and stationary sector, such as agriculture, tend to experience very few changes over the years. For example, in Demir's (2008) study, it was concluded that because some organizations fail to adapt to the culture governing certain sectors, they experience "cultural color blindness" due to cultural disagreement.

2.5.4. Manner of the Work Done

If the work being done is dynamic, open to innovations, constantly interacting with the environment and suitable for rotation, the risk of myopia will be diminished but increase the myopia of work routines and closures. For example, an individual who works in a closed depot as a drug stock officer in the store of a pharmaceutical company and an individual who operates in different regions and comes into contact with different persons and who is in constant motion in the field marketing business due to his/her work will have different levels of organizational myopia. In the limited number of studies done, there is some evidence that less organizational myopia will be experienced in jobs that are appropriate for rotation (Kayıkçı et alia, 2015; Nural & Çıtak, 2012).

2.6. Positive Myopia and Serendipity

Myopia should not always be perceived as a negative and unwanted condition. There is a beautiful story by Austrian poet Ingeborg Bachmann titled *Miranda*. In this story, the main character, who has extreme myopia, travels without glasses, as a form of protection against the world. Miranda's strategy to protect herself is to deny a destructive truth. Although untreated myopia prevents her from seeing the distress signals, this helps her to tolerate certain unclear problems.

The use of extravagance in promising future benefits can thus often be found and may play a useful role in those development projects that require difficult initial decisions, be it a change in existing institutions or a fiscal sacrifice demanded of some or all of the citizenry. Actually, the promise of some sort of utopia is most characteristic of larger-scale undertakings, such as the

launching of social reforms or of external aggression, because they are likely to require heavy initial sacrifices (Catino, 2013:63).

Positive myopia plays a positive role in the emergence of creative abilities to counter the uncertainty and in balancing uncertainty. In other words, it facilitates the realization of complex projects where uncertainty prevails and facilitates innovation. This makes it clear how individuals benefit from their mistakes. There are incidents that can have unpredictable social actions that result in positive effects on everyone involved. These events are meaningful for the conceptualization of positive myopia. Adam Smith's "invisible hand idea" is an example.

Another concept of positive myopia is expressed as "chance". In this context, serendipity / serendipitous, as defined in the Oxford English Dictionary, can be descriptive. Serendipity / serendipitous is a word derived from the letter written by Walpole's friend Mann in January of 1754. He bases this on the fact that the heroine makes inventions outside of wisdom through accidents / fortune-telling. In the well-researched and detailed book, Marton Mayers has included many surprising coincidences in his adventures. For example; Alexander Fleming's observation of the absence of contaminated coccus bacterial culture with penicillin led to the development of antibiotics. John CADE's study of the effects of the injection of uric acid and other components into the gut is a less well-known example. Once these components, which were considered to be toxic, were injected into the hind paw of guinea pigs, surprisingly the guinea pigs grew relaxed and less moody. Based on this, Cade assumed that lithium salts would be useful in the treatment of human manic episodes and went on to prove this theory. Currently, sildenafil, which is used in the treatment of angina (chest pain caused by ischemia of the heart muscle or spasm of the coronary arteries, tightness and feeling of pressure), does not support blood flow in the heart; however, it was unexpectedly observed to increase blood flow in the male sexual organ. This observation paved the way to the development of Viagra, a drug used in the treatment of impotence (Emery, 2007).

2.6. Organizational Myopia and Benchmarking

Benchmarking in healthcare is an active process of continuously evaluating critical processes and/or clinical outcomes and comparing the results with similar organizations or populations. Benchmarking is a measure of best-practices performance. Based on benchmarking results, best practices can be identified and adopted, thus achieving superior performance. Benchmarking is useful in healthcare for both operational and clinical processes. Benchmarking can be used as a management tool to overcome paradigm blindness, or to determine the best process from among the processes currently available. Benchmarking, which is used to determine threats and opportunities, creates proactive transformations and thereby can be evaluated as a tool for decreasing organizational myopia (Mullner, 2009:95).

2.7. Results of Organizational Myopia

It can be predicted that the organizations experiencing organizational blindness problems will not be able to develop a healthy vision, have problems in interacting with their internal and external environment, and will not be able to reach their strategic goals. Myopic behaviors cause problems related to cooperation with other organizations and communication (Rey, 2014: 75). Organizational blindness is an obstacle to organizational learning (Levinthal & March, 1993: 101). Moreover, organizational blindness will prevent organizations from being able to stay abreast of sustainable learning and development opportunities because they will not be able to perceive the opportunities and threats they face. Workers in organizations that are blind may experience a sense of excessive monotony over time, which could result in inefficiency, burnout, and lack of communication. The measures that can be taken against the problem of organizational blindness include being open to learning, assisting in or cooperating with academic circles, effective leadership, and applying different evaluation systems (Dös, 2013: 156).

3. ORGANIZATION STRUCTURE

Organizational structure involves the chain of command in an operation. Who is responsible for whom, and who is given how much authority and responsibility is determined by this structure. Some businesses have more flexible structures. It may be necessary to change the technology and other

environmental conditions from time to time in the business and operations wherein the operator may be affected by changes and developments in the environment. This thought has led to the emergence of organic structures. However, some organizations have argued that it is not possible to change the environment, under the belief that the environment is fixed, or to influence operations through development. Such structures are referred to as solid structures (Gümüş, 2002).

Burns and Stalker (1961) categorized organizations, in terms of their characteristics, as "mechanical" and "organic" systems (Ketchen et alia 1997; Drago, 1998). The organizational structure is generally dealt with in the context of mechanical (mechanical) - organic separation. From a structural point of view, it is possible to assess the structure of an organization in terms of its suitability to the characteristics of these organizational types, which represent two extreme points.

3.1. Mechanical Structures

In mechanical structures, the emphasis is placed on expertise rather than on the chain of command; employees in positions based on expertise have relatively limited access to information about the general operation of the business; extensive vertical communication and limited bi-directional communication take place within the hierarchy; operational procedures and processes are often connected to a system or shaped differently; commitment to formal job descriptions is the norm (Green et alia., 2008: 360-361).

The organizational structure can be defined as a managerial tool for formal distribution of work roles and for integrating and controlling work-related activities. In this sense, organizational structure is an indispensable tool. Incorrect configuration can seriously weaken business performance. Various classifications can be made regarding organizational structures. Among them, the mechanical and organic organizations of Burns and Stalker are the most well-known organization structure classifications (Ghani et alia, 2002: 158–161). The standardization level of behaviors and activities of individuals within an organization is the main determinant in identifying the mechanical and organic nature of organization structures. (Dalton et alia, 1980: 49). If, in an organization, the level of standardization of behavior is high, then it is considered to have a mechanical nature, whereas if the level of standardization is low, then it is considered to have an organic organizational structure (Ghani et alia, 2002: 158-161). Organic organizations are characterized by their less formulated aspects of work, their ability to emphasize flexibility and adaptability, and their ability to communicate in a consultative style rather than give orders. Mechanical organizations, on the other hand, are structured much more rigidly (Hunt, 1970: 238). Typically, they are highly formal, routine-oriented, hierarchical, tightly controlled, and inflexible.

3.2. Organic Organization Structure

It is not possible for an organization to survive by repeating its existing practices against the ever-changing internal and external environmental conditions. It is therefore vitally important to develop an organizational system that can adapt to dynamic environmental conditions and take the place of the mechanical (traditional) understanding of the organization. In this system, instead of separating and differentiating traditional systems, which sees organizational structure as a function of connected elements, it can adopt the "organic organization" system, which is the main objective of integration. In a sense, a system wherein possible conflicts are addressed according to problem-solving procedures is dominant in the organic organization, which is inversely related to mechanical organization, where there is mutual trust-based authority and responsibilities are shared (Yeniçeri, 2002). More emphasis is placed on expertise in organic structures, information is clearly shared among members of the organization, loose and unstructured control mechanisms and cooperative norms are used to guide the actions of individuals, actions aimed at are often carried out without regard to past practices or existing procedures, and non-formal interaction methods are applied (Green et alia, 2008: 360-361).

4. CONCLUSIONS AND RECOMMENDATIONS

Recalling the famous line from Sophocles, "heaven never helps the man who does not help himself", it is important that in order to successfully manage conventional events that are highly complex, decision makers should increase the incentives for realizing systematic and cultural transformations and develop systems as organic structures. Arrangements for preparations designed to reduce the likelihood of catastrophic events must be strictly enforced. Financial incentives should be

aligned with the achievements of the decision makers as well as the achievements of the community so that the decision-makers are able to adequately address risks with positive myopia.

Organizational myopia can be avoided by following a multidisciplinary approach in scientific research and collaborating in organizational processes and by focusing on the positive impacts that stakeholders (managers, employees, customers, etc.) can have in organizations. Incorrect decisions about organizational processes can also be considered in the context of myopia. One possible way to reduce the likelihood of encountering this situation is to increase the involvement of stakeholders as well as to improve their knowledge and skills about organizational processes. The importance of increasing the quality of communication between persons and units in such situations should also be taken into consideration. Communication of this kind can only be achieved through the structure of an organic organization.

Despite the recent interventions in research, myopia, which exists among research disciplines and between clinicians and researchers, social scientists and biological scientists, doctors and nurses, and the public and the private sector, can be reduced through greater cooperation between the individuals and the units, high-quality communication and multidisciplinary approaches, as mentioned above.

The primary factors responsible for organizational myopia include organizations being closed to transformation, being closed to inspection, being closed to workers' ideas and opinions, having an excessive focus on maintaining status quo or normative behavior, workers within the organizations believing that they do their job very well, weakness of environmental relations, autocratic management style, organizational conflicts, and the lack of organizational vision and goals.

In mechanical structures, special emphasis is given to the chain of command, employees in positions based on expertise have relatively limited access to information about the general operation of the business, extensive vertical communication and limited bi-directional communication take place within the hierarchy, operation procedures and processes are often connected to a system or are shaped differently, and commitment to formal job descriptions is the norm. All these features suggest that there is a high probability that mechanical organizations will experience myopia.

Based on the evaluation of the cause and effect relationship between mechanical structure and organizational myopia, a significant correlation was found between structural organism and organizational myopia when the behavioral support of organizational myopia and other factors affecting it were conceptually analyzed

It is proposed that research concerning the conceptualization of myopia and the effects on organizational life should be based on organizational structure. Furthermore, original research on this issue should include the range of possible factors involved when designing research questions, such as management styles, leadership styles, decision-making styles, personality structure, and power poisoning, as these may have an impact on the cause and effect interaction. When addressing the results of organizational myopia, it is suggested that factors like inefficiency, lack of communication, burnout, and dissatisfaction when designing research questions be taken into consideration. Finally, in designing research related to organizational myopia, particularly in terms of the direction (antecedent / successor) the research is to be approached, it is important to keep in mind the context in which the results will have an effect.

REFERENCES

- Altınay, A., Mercan, N., Yaşar, A., Sert, S. (2012). "İşletme Körlüğü, Silo Sendromu Ve Çözüm Önerisi Olarak Örgütsel Zeka", *Organizasyon Ve Yönetim Bilimleri Dergisi* Cilt 4, Sayı 1, 2012 Issn: 1309 -8039
- Catino, M. (2013). *Organizational Myopia, Problems of Rationality and Foresight in Organizations*, Cambridge University Press The Edinburgh Building, Cambridge CB2 8RU, UK.
- Dalton, D.R, Todor, W.D., Spendolini, M.J., Fielding, G.J. Porter, L., W. (1980), "Organizational Structure And Performance: A Critical Review". *Academy of Management Review*, Vol.5, No.1, 49-64. ss.

Davidson, I. (1991), "Is Probability Theory Relevant for Uncertainty? A Post-Keynesian Perspective," *Journal of Economic Perspective*, 5, 1, 129-43.

Döş, İ. (2013). "Örgütsel Körlük ve Okul", V. Uluslararası Türkiye Eğitim Araştırmaları Kongresi Tam Metin Bildirileri Kitabı, 150.

Drago, A. William (1998), "Structure as a Predictor of Strategic Planning Use", *Journal of Applied Business Research*, 14(1), 125-137.

Emery, A., (2007), "Happy Accidents: Serendepity in Modern Medical Breakthroughs", *The New England Journal of Medicine*, Massachusetts Medical Society.

Ebrahim, A. (2005). Accountability Myopia: Losing Sight of Organisational Learning, https://www.researchgate.net/publication/228616472_Accountability_Myopia_Losing_Sight_of_Organizational_Learning, Erişim Tarihi: Ocak 2018.

Ghani, K.A., Jayabalan, V., Sugumar, M. (2002). "Impact of advanced manufacturing technology on organizational structure", *The Journal of High Technology Management Research*, 13, 157-175. ss.

Green, K., M., Covin, J., G., Slevin, D., P., (2008), "Exploring the Relationship between Strategic Reactiveness and Entrepreneurial Orientation: The Role of Structure-Style Fit", *Journal of Business Venturing*, 23, pp. 356- 383.

Gümüş, M. (2002). Yönetimde Başarı İçin Altın Kurallar, Alfa Basımevi Dağıtım, İstanbul.

Hunt, R.G. (1970). "Technology and Organization". *Academy of Management Journal*, 13, September, 236-252. ss.

Kayıkçı, K., Yörük, T., Özdemir, İ.(2015), "City and County Education Managers' Opinions on Implementation of Rotation İlköğretim Online", 14(1), 200- 215.

Ketchen, D.J., Combs, J.G., Russell, C.J., Shook, C., Dean, M.A., Runge, J., Lohrke, F.T., Naumann, S.E., Haptonstahl, D.E., Baker, R., Beckstein, B.A., Handler, C., Honig, H., Lamoureux, S. (1997), "Organizational configurations and performance: a meta-analysis", *Academy of Management Journal*, Vol. 40 No.1, 223-40.

Kunreuther, C., H.; Kerjan, M., O., E., (2010), "Learning From the BP Oil Spill and Other Catastrophes", *The Milken Institute Review*.

Leonardi, P., M., (2011). "Innovation Blindness: Culture, Frames, and Cross-Boundary Problem Construction in the Development of New Technology Concepts", *Organization Science* Vol. 22, No. 2, March-April 2011, pp. 347-369.

Levinthal, Daniel A., March, J., G., (1993). "The Myopia of Learning Author(s): Source: *Strategic Management Journal*", Vol. 14, Special Issue: Organizations, Decision Making and Strategy (Winter), pp. 95-112.

Levitt, T. (1960; 2004). Marketing Miyopia. *Harvard Business Review* (Best of HBR 1960). July-August, 138-149.

Mullner, R., M.,(2009), *Encyclopedia of health services research*, SAGE Publications Ltd., California.,

Mason, R., M., (2005), Avoiding Epistemological Myopia, http://faculty.washington.edu/rmmason/Publications/Proof_Epistemological_Myopia.pdf A.T: 17 Nisan 2017.

North, D. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Press.

North, D. (2005), *Understanding the Process of Economic Change*, Princeton University Press.

Nural, E., Çıtak, Ş. (2012). “Ordu İlinde Resmi Eğitim Kurumlarında Görev Yapan Yöneticilerin Zorunlu Yer Değiştirme Uygulamasına İlişkin Görüş ve Önerileri”, 7. Ulusal Eğitim Yönetimi Kongresi, Malatya.

Rey, G., Z. (2014), Reducing Myopic Behavior in FMS Control: A Semi-Heterarchical SimulationOptimization Approach, Universit’e de Valenciennes et du HainautCambresis.

Sato, H., (2012), “Routine-Based View of Organizational Learning and Mechanisms of Myopia”, Annals of Business Administrative Science 11, 45–54.

Serrat, O., (2010), Bridging Organizational Silos,. Washington, DC: Asian Development Bank. <http://digitalcommons.ilr.cornell.edu/intl/120> A.T: 17 Nisan 2017.

Seymen, O., A., Kılıç, T., Kinter, O., (2016). “Örgütsel Körlüğün (Örgüt Miyopisi) Ayrıntılı Kavramsal Analizi Ve Ölçümü: Geliştirilen Bir Ölçek Yardımıyla Değerlendirme”, Eurasian Academy Of Sciences Social Sciences Journal Sayı: S1, 212-222.

Tonbul, Y., Sağıroğlu, S. (2012). Okul müdürlerinin zorunlu yer değiştirme uygulamasına ilişkin bir araştırma. Kuram ve Uygulamada Eğitim Yönetimi [Educational Administration: Theory and Practice], 18(2), 313-339.

Vaughan, D. (1996), The Challenger Launch Decision: Risk Technology, Culture and Deviance at NASA, University of Chicago Press.

Yeniçeri, Ö. (2002). Örgütsel değişimin yönetimi: Sorunlar, yöntemler, teknikler, stratejiler ve çözüm yolları. Ankara: Nobel Yayın Dağıtım.