

Economic And Technological Views On The Crisis And Crisis Management

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Abstract — The paper structures research views on the crisis and its management. It focuses on two views - economic and technological. Furthermore, it describes the basic features of models chosen according to those views. By their comparison it shows how the crisis influences organizations and individuals, and their mutual interaction.

Keywords-crisis; economy; technology; view; model

I. INTRODUCTION

The growth of problems in the field of crisis management is a challenge for both people in practice and researchers. In the seventies, research papers concerned with that field advanced forward further stages. Scientists began to be interested in a concept of crises in various disciplines. They started to develop models that created the main framework for the recognition of crises.

The paper gives an overview of some of important contributions to the study of crises. The procedure makes it possible that the description of the basic features of chosen models or the results of research show to what extent the crisis and its development influences the organization and an individual and how they react to it.

Booth [1] mentions three points of view applied in structuring development tendencies in the field of crises investigation - psychological, sociological, and economic. A psychological perspective concentrates on individuals and their reaction to the crisis. Some scientists abandoned the psychological perspective and applied a sociological background. A political-economic perspective inclines to view crisis development from the standpoint of managerial or political advantage. It includes scientists' contributions in the field of international relations. Economists focused on economic analyses of organizations and developed theories enabling them to predict crises in the private sector. The basis of sociological perspective is research of handling with social responses to environmental crises such as famine, earthquakes or fires. A significant representative of that perspective is Quarantelli who is especially interested in the way of how societies react to crises.

Every perspective has a tendency to use technique or methods of analysis which is traditional in the field of study. Psychological perspective uses to a large extent an interview and psychological techniques. Political perspective uses a game and theories of negotiations. Economists have a

tendency to apply empiric knowledge. Sociological perspective uses various kinds of sociological methods (surveys, interviews).

Author's approach is based on those three perspectives that she develops and completes. For the systematization of particular models and approaches classification she uses a 4C method designed by Shrivastava [10]. Shrivastava uses this method in his studies of crisis in which he focuses on four key aspects: causes, consequences, caution, and coping. Causes mean failures that triggered the crisis and the previous circumstances that allowed failures to happen. Consequences are immediate but they may also have a long-term impact. Caution includes precautionary measures and minimization of impacts. Coping includes a reaction to the crisis that has set in.

The mentioned models, approaches and frameworks are very complex and often closely interconnected so it is not possible for some of them strictly to confirm the unambiguousness of their classification according to a certain view. Yet, the author emphasizes their most important features and according to them she classifies them. A created set of models, approaches and frameworks is not comprehensive as it represents only a fraction of the published papers. Also their classification according to standpoints may be a matter of discussion because most authors admit the equivocal character of crisis and thus more views are often overlapped in their approaches. In the submitted paper the author concentrates on the standpoint of economic and technological views on crisis and its development. In the follow-up article the author focuses on psychological and sociological views.

II. METHODOLOGY

Theoretical processing is based on theoretical research encompassing the analysis and systematization of obtained knowledge. A classification analysis is used for the differentiation among particular definitions and conceptions of crisis and crisis management. At the relation level it is possible to reveal more complex dependencies between elements of crisis and factors influencing it, especially functional dependencies. Given the scope of the article, these dependencies are only foreshadowed. The author deals with them in greater detail in a more extensive study as well as with clarifying the mechanisms of observed phenomena functions. On the basis of comparison, the author considers the properties of phenomena under searching. Synthesis of

knowledge is a presumption for the formulation of conclusions. In the mentioned study a synthesis is used. This synthesis is not a mere composition of particular phenomena but, at the same time, it is a creation of new wholes and new views.

III. DISCUSSION - ECONOMIC VIEWS ON CRISIS AND ITS MANAGEMENT

According to Slatter [12] who takes the economic approach to the crisis, scientists should be aware of the role of human stress in the crisis. He accepts factors of inclination to the crisis that he describes as external and internal factors of organization's susceptibility to the crisis.

He suggests three important variables:

Competitive and environmental variables: Sudden changes in the environment within the market or suppliers cause problems to the organization, it is more vulnerable to the crisis.

Administrative variables: Managers' personal qualities and abilities and their style of leadership have a significant influence on the quality of decision-making and for that reason on the abilities of organization to cope with the crisis.

Organizational variables: The size of organization, its position on the market, financial stability, structure, planning, checking and the like influence management and their opinion on the preparation and coping with crisis situations.

Zuzák [18] lays emphasis on the procedural character of crisis development and crisis management generally. He differentiates several phases of crisis process, for example a period of the potential crisis, which is the period of imbalance between the organization and its environment. If the imbalance in question is not a consequence of fluctuations, e.g. seasonal ones or if it is not a manifestation of the cycle then the imbalance signals a probability of potential crisis emergence.

If growing of the imbalance continues and it even spreads to other organization's areas of activities then the period of latent crisis is coming. A crisis chain of partial imbalances may emerge that apparently become evident separately. Some crisis symptoms can be already identified (e.g. rise in the ratio of waste, fluctuations, decline in work discipline, claims). Often they do not reflect in the field of finance yet, and so not much attention is usually paid to them.

In the following phase, which is the acute phase the imbalance already penetrates into the financial area. Expenditures are going up. Insolvency appears, there is lack of funds as they are often tied down to stocks. Organization becomes illiquid and the culmination of this phase is often the last phase - the beginning of unmanageable crisis. As long as it is not possible to manage the crisis in the last but one phase then it is not usually possible to remedy destructive effects of the crisis in this last phase.

Also Umlaufová and Pfeifer [16] are of a similar opinion. To indicate individual phases they use a different terminology: the stage of symptoms, acute stage, chronic stage and the stage of crisis sorting out. Crisis and its management may have a tendency to the straightforward fast progress at the end of which there is succumbing (Fig. 1) or a

tendency to the complex progress along with overlapping and recycling of stages with their recurrences, the increase in intensity of difficulties and often finishing also by succumbing to the crisis (Fig. 2).

From comparison of the mentioned approaches, but also from other studies which are not mentioned here because of the scope of the article, results the following:

Successful crisis management can be described by the chain of completely managed crisis: stage of symptoms --- acute stage --- chronic stage --- crisis resolution --- decreasing of another crisis probability. Ideally, the management will record the symptoms of the crisis in time and take the right measures: stage of symptoms --- clearing away the causes of symptoms --- sorting out the crisis --- decreasing of probability of another crisis breaking out.

The length of particular phases is individual and it depends on a number of internal and external factors.

Breakpoints in the development is the limit of coordination where contradictions between the interests of organization and the interests of its environs are acceptable for a limited time period only, if it is exceeded, contradictions will end in confrontation.

Mikušová [5] observes crisis management in three phases. At the first level a small decline in income appears, causes of that decline are not sufficiently looking for as the organization will recover soon. But after a certain time, new insolvency will appear; part of income is allotted to the repayment of debts all the time. During further development the point at which the debt cannot be repaid continually is exceeded and the bankruptcy will happen sooner than it is possible to find and put into effect an efficient solution.

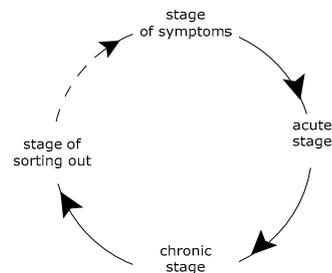


Figure 1. Straightforward fast progress of the crisis

Revised from: [16, p. 21]

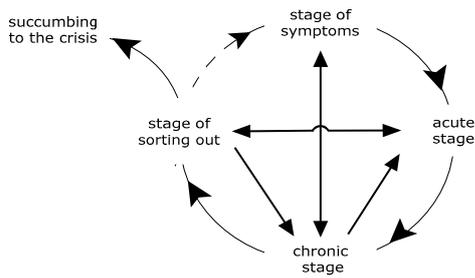


Figure 2. Complicated progress of the crisis

Revised from: [16, p. 22]

According to that thesis [5] the emergence of bankruptcy can be divided into three thirds. In the first two thirds it is possible efficiently to intervene but the last third brings the end as what was possible to make up for has been missed because a real reason of their emergence was not recognized.

Frybert [2] exclusively focuses on economic crises and he described a procedure of crisis solution. He differentiates several phases: the phases of prevention, identification, resuscitation, diagnostics, consolidation and stabilization, and the phase of strategic solutions. Into the solution of crisis Frybert [2] includes also the phase of prevention, the period of preparation for crisis. In the subsequent phase, it concerns the identification of the state of emergency and the immediate acceptance of major inevitable short-term measures to ensure the operation (supply of electricity, raw materials and the like). After that introductory phase, rough diagnostics of the basic causes of crisis emergence follow on the basis of which the management has to decide what further procedure in an intermediate medium horizon will be implemented. In this phase already the first breakpoint appears - decision-making on the direction of organization's further development. Decisions are made to stop the operation or to implement further steps for stimulation [3]. This is the first level of strategic decision-making on organization's further development. A negative alternative of further development means to make decision on winding up the organization or starting an insolvency procedure. Such alternative is usually chosen in case a rough analysis shows that the subject is not able further to survive and it is not either possible or necessary to prolong its agony. A positive alternative means that in the subsequent phase makeshift revitalization measures will be taken that will put remedial measures into effect and at the same time they will form a space for subsequent decision-making on the basis of detailed analysis as a whole as well as its parts. On the basis of detailed analysis, variants of revitalization concept will be worked out, which means the second level of strategic decision-making on further development of the organization.

By means of synthetic conclusion of the analyzed approaches (also those that are not mentioned here) can be deduced the basic view of crisis phenomena and their solution in three phases: a phase of prevention (crisis

potential, precautionary measures), a phase of repression (the scope of crisis, repressive measures), a phase of remedy (the extent of subsequent damages, means of damages liquidation).

Completion – economic views on crisis and its management

Original, solely economic responsibility when the organization was responsible only for economic results of its activity has been extended for the social area encompassing ethical interests. The grade of organization's social responsibility can be judged according to what extent it is willing to meet legal requirements put on them on a higher rate than it is essentially necessary (protection and safety of employees, the issue of environment-friendly production and the like). Managers' decision-making cannot be motivated by economic indicators only but it has to reflect also wider impacts - on employees, region and on the environment.

A number of big institutions are ranked among big supporters of education and providers of subsidies for underprivileged people. It is meritorious but without ethical behavior of upholders themselves it does not work as CSR (Corporate Social Responsibility) programs themselves will not save organizations. On the basis of analysis of both theoretical and practical approaches it is necessary to state that organizations' ability to balance among pressures on short-term decisions and a long-term perspective appears to be as the most difficult. Complexity of considering a long-term economic, ecological or social sustainability often disappears under the pressure of everyday tasks.

IV. DISCUSSION - TECHNOLOGICAL-STRUCTURAL VIEWS ON CRISIS AND ITS MANAGEMENT

From a crisis management standpoint, techniques representing production equipment and other tangible means, technologies, procedures and tactics of management, management's experience and usual practice are included into those views (by applying a classification analysis). A great emphasis is put on structural and human causes, and presages of failure in operation [7]. According to prevailing opinions, performance without almost any accidents is not possible and erroneous operations should be regarded as normal with a certain probability of occurrence [7], [9].

Smart and Vertinsky [13] searched the importance of managerial style in determining organization's vulnerability towards the crisis. They identified five various kinds of business environment - constant, falling, expanding, periodical and being interrupted (the expanse with declines). They claim that the autocratic style is the only efficient one in the constant environs in which the ongoing crisis is least probable. In all other environments where the occurrence of crisis is more probable they consider a democratic managerial style as more appropriate.

Research done by Holsti [1] focused among others on searching the influence of crisis outcomes on managers. Also in his research work important impacts induced by the stress were identified.

Synthesis of the results following from various approaches from the standpoint of stress can be briefly described as follows:

A. Decrease in the span of attention:

With ongoing crisis a pressure on management work is increasing. They have to make decisions more and more quickly in spite of continual changes. This widens the volume of information in the communication system and increases demands on their reasonable evaluation and processing. Unfortunately, the time pressure often leads to overlooking of essential information or also to ignoring information that does not support any former or present system. Managers have an option to return to decision-making based on previous experience. In this way their decision-making loses a strategic dimension.

B. Increase in administrative inflexibility:

Growing stress influences individuals. Their ability of long-term coping with the stress is decreasing. This leads to the decline in their ability to evaluate various information sometimes even opposing and to the tendency to take one dominant view of the situation.

The author [5] in her article also pays attention to a personality of manager who comes even more to the fore in the period of crisis. A manager is exposed to the concerted pressure he or she is forced to make decisions while having lack of information he or she has to cope with critical conflicts. The period of crisis is one of the most important tests which managers and their organization are exposed to. It is the opportunity for "getting in the sun" as well as to writing a professional epitaph.

Mitroff and Pauchant [6] observed in their empiric study the way of how organizations were preparing for the crisis. They identified four factors that specified whether the organization was prone to the crisis or ready to face it. Those critical factors were as follows: organizational strategy, organizational structure, organizational culture, and characters of individuals working in the organization.

Shrivastava et al. [10] move crises outside the organization as such and consider them as inter-organizational phenomena that cannot be judged separately. On the basis of studies they specified several characteristics of crises. Characteristics of crises are illustrated by means of data relating to three different events: poisoning after taking Tylenol medicine, the escape of poisonous gas in Bhopal, and the explosion of Challenger space shuttle. Those events harmed organizations of both state and private sector, influenced world opinion, and concerned a broad number of product and manufacturing technologies.

Charles Perrow [7] did not focus on managers, their instruments and techniques applicable to warding off a crisis but on the support of activities having higher tendency to crisis than others independently to manager's individual qualities. He searched natures and properties of organizations and their relations to environment. He identified two important axes that he thought to have a considerable impact on the nature of crisis. The first axis represents a stage of interconnection. Loosely connected systems may work even

under condition if one or two connections are missing. Closely connected are those where even a small error may mean a collapse of the whole system. The second axis represents the stage of mutual influencing. As long as the relation is linear the errors can be easier identified and solved. As long as it is a complex system of relations it can be very difficult to find the errors and follow their consequence in the system. Perrow claimed that a combination of tightly connected complex bonds may lead to the situations in which even a small change in mutual acting or interconnection of bonds may lead to a catastrophe. Perrow's work resulted in emphasizing the need of organization to avoid activities that are closely interconnected and complex as they may lead to a critical collapse.

Shrivastava [11] and Smith [14] describe models of crisis's causes that are more advanced than Perrow's analysis and they include errors outside those technological systems. Their models content errors in the methods of organization, in judgment of staff operation and leadership, general directives, safety infrastructure, and readiness of environs. In case of crisis emergence as a consequence of breakdown or catastrophe Zuzák [18] mentions three phases - a phase of primary reaction, a stabilization phase and the phase of action (Fig. 3).

Perrow's issue of interconnection and influencing is associated with a further direction of research work that was taken over from HRO (High Reliability Organizations) project. It means examining phenomena connected with the operation system with the extraordinary level of safety, and with production capacity under very demanding conditions [4].

According to Sagan [9], the theory of high reliability (HRT) suggests that it is possible to learn from operational errors, to strengthen safety from the lowest levels in order to reach such state in which the whole risks system will become quite safe. Sagan compares this procedure with NAT (Normal Accident Theory). This theory is based on a presumption that it does not matter how much the organization tries to be sound. For most risks systems a mutual complexity is characteristic that allows the emergence of unavoidable errors reacting in unexpected directions and thus foiling the system of safety, and tight bonds in which small errors will become big. Catastrophic accidents are normal (meant extraordinary) as they are connected with those risks systems. On the example of HRO theory it is possible to see the development of teaching itself organization [9], [17]. Roberts [8] at his study of HRO characteristics mentions the opportunity of improving procedures in crisis sorting out; it includes factors that contribute to the development of crisis. These factors focus on the nature and role of human errors, on the danger revealing vulnerability which is connected with the safety of critical system.

Even though the nature and validity of HRO theory (called HRT by Sagan) was contested [7], [9] and was the subject of thorough discussion at present it provides some important and interesting impulses for the theory of management as well as practice.

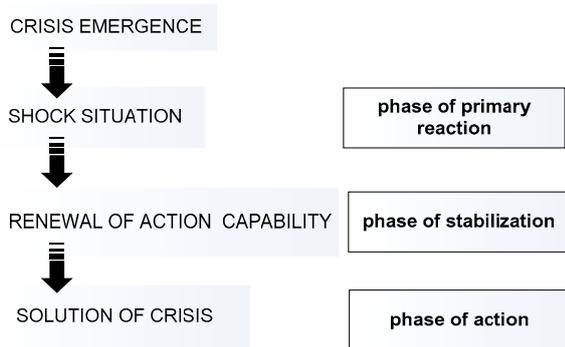


Figure 3. Phases of crisis as a consequence of breakdown

Revised from: [18, p. 55]

Initially, HRO research concentrated on organizations with a high 'potential of failure' as e.g. controlling of flight operations, military systems (control system of aircraft carrier) or management of nuclear power station. A possibility of shifting concepts developed in those branches to other highly risk activities, for example health care is significant and it can contribute to better understanding of processes thanks to which a crisis potential is 'hatching out' in organizations [15]. HRO studies created systems and processes that would ensure that knowledge was explicitly informative and affected all persons within the organization [8]. They also developed culture of training of continual improvement that allows employees to remain motivated and willing to learn. It also provides them with skills and self-confidence needed to the solution of complex demands in the system in which they work, e. g. [8]. Another area in which research in HRO offers interesting opportunities for further considerations are relationships between managers and other members of the organization. Of a high priority in HRO activity are processes aimed at issues of growing communication and a possibility of its violation [17]. A key factor in HRO is human capital and its abilities [8].

C. Summary of a technological-structural point of view

From a technological-structural point of view, causes of crisis are interactive, closely interconnected and based on technologies, technical background and managerial factors both inside and outside the organization. Technologies cannot be avoided that is why managers should be cautious in relying on high-risk technologies. The stage of cautiousness is connected with to what extent the organization is prepared for the crisis. Consequence of catastrophes resulting from the application of those technologies can be an extensive destruction that may cause heavy losses of property as well as casualties.

V. CONCLUSION

A system approach to crises and its outcomes allow progress in research of crises. At the same time it means help also to practical preparation for crises and coping with them. All aspects of crises deserve much more attention from

researchers than it has been paid so far. Economy, management, organizing or the existence as such will never be the same after the crisis as it used to be before it. Organizations need a better description of all kinds of crises. They need an analysis of their causes and consequences. They need instructions for the defense against them and to their management. The author lays an emphasis on frequently occurring economic and technological factors in models and constructions of crisis management. These factors (on the one hand top management themselves and their approach to the crisis and its managing, on the other hand the organization with its culture, structure and strategy) can be traced almost in all organizations in their relation to the crisis.

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