

Conceptual framework for organizational adaptability in a context of disruption management

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Abstract

This article characterizes the concept of organizational adaptability in a context of disruption management. Organizations must manage disruptions and implement measures to maintain their operations. Many studies have been done to define best practices in disruption management planning. The standards used to develop this planning reveal the necessity of managing unforeseen events and adapting but do not provide a detailed methodology. The conceptual framework developed in this article identifies the elements that compose organizational adaptability in the context of disruption management. A definition of organizational adaptability in a context of disruption management is obtained from studies in biology, psychology, anthropology, sociology and organizational resilience. Work done by the research center with its industrial partners makes it possible to define the elements that compose this adaptability. An organization's adaptability in a context of disruption management corresponds to the temporary adjustment of disruption management processes based on the actual disruption. This adjustment requires the organization to make a real-time tradeoff in resource allocation and the assignment of roles and responsibilities among departments. This tradeoff must be based on an understanding of the disruption and the construction over time of knowledge of the disruption's consequences for the organization's constraints.

Keywords: resilience, adaptability, disruption management, roles and responsibilities, knowledge

Introduction

Organizations need to manage disruptions. To maintain their operations despite disruptions and demonstrate resilience, they plan emergency measures and business continuity strategies. The environment in which organizations operate is constantly changing, and the actual disruptions they must face may differ from those identified during planning activities or, quite simply, not have been considered during planning. Thus, organizations need to adapt to mitigate this kind of unforeseen event.

What does organizational adaptability mean in a context of disruption management? What are the elements that contribute to organizational adaptability during disruption management? This article addresses the concept of organizational adaptability in the course of disruption management with a view to maintaining operations despite disruptions and proposes a conceptual framework within which adaptability can be analyzed. First the concept of adaptation will be defined. Then the role of adaptation within organizational disruption management will be clarified. Finally, the elements that make up organizational

adaptability will be described and presented within the conceptual framework.

Methodology: Action research

The approach retained to develop the conceptual framework is the action research methodology. This methodology allows researchers to collaborate with managers of organizations (Thiétart, 2007). The problem to be solved is raised by stakeholders on the ground and handled in cooperation with researchers; then its validity is tested directly in the field (Argyris, Putnam, & MacClain Smith, 1985). The need to develop a conceptual framework of organizational adaptation arose from a research project conducted with the managers of a test municipality with a population of approximately 600,000 (Micouleau & Robert, 2020). Simulations with managers from different municipalities, critical infrastructure managers (electricity, water, and telecommunications) and heads of small and medium-sized businesses in the manufacturing and agricultural sectors led to the development of the key variables affecting organizational adaptability in the context of disruption management.

Adaptation: Transformation to cope with changes in the environment

Adaptation is a concept that is used in many fields, including biology, psychology, anthropology and sociology. These fields of study are relevant for research into organizational adaptation because they investigate the adaptation of individuals belonging to a group as a function of the environment in which they live. Within organizations, managers must adapt to the environment in which the organization operates, while maintaining consistency with other managers in order to ensure the organization's long-term survival.

In biology, adaptation corresponds to the transformation of living beings with the purpose of continuing to benefit from the environment in which they live: Lamarckian adaptation (Simonet, 2010). Bocquet (2002) points out that this kind of adaptation by living beings has the aim of enabling them to contribute to the survival of the species to which they belong. In the field of psychology, adaptation – or coping – is considered to mean “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984). Thus, difficult or stressful situations require the individual to adapt in order to handle them. In anthropology, adaptation corresponds to biological and behavioral adjustments that human beings engage in to ensure that they will be able to reproduce and survive in their environment (Bates, 2005). Finally, in sociology, adaptation represents the changes individuals engage in that enable them to integrate and belong to a group (Boudon, 2002).

In all these definitions, adaptation refers to adjusting, changing or transforming to cope with new conditions with

the goal of maintaining objectives related to sustainability and survival.

In organizations, adaptation can be defined as an organizational change intended to respond to the confirmed or anticipated appearance of new internal or external conditions and to restore internal coherence or allow the organization to meet the expectations imposed by the environment and fit in with its characteristics (Brassard, 2003). Thus, for an organization, adaptation also relates to changes in the environment in which it operates. Disruptions are a particular kind of environmental change that organizations are subject to; they may have serious consequences for the continuity of an organization's operations. More specifically, disruptions correspond to events that impede the use of one or more resources the organization requires to provide its outputs, or may even make these resources unavailable (Micouleau, 2016). Disruptions of different kinds can affect an organization. They may have natural origins, such as flooding, which can result in loss of access to the organization's premises. They may be technological disruptions, such as the loss or corruption of organizational data. Another example is an electricity outage, which could affect the production line or building ventilation, among other things.

In the next section, we will describe the context of organizational disruption management and the importance for organizations of adapting to maintain their operations despite disruptions affecting their operating environment.

Disruption management within organizations

Respect of organizational constraints

An organization is subject to constraints: conditions that must be satisfied in order to achieve the goals that have been set. Failure to respect these constraints can have consequences for an organization's operations. Thus, to ensure that an acceptable level of operations is maintained, the organization's highest-priority constraints must be respected. The constraints affecting organizations vary from one organization to the next, even though they may be similar within a given area of activity. These constraints can be classified into six major categories (Bekkali, 2018). For each of these six categories, examples from the work with our partners are described.

- Organizational constraints: The internal rules and policies the organization has established for itself. Examples include a quality policy that the organization has adopted that is more stringent than industry standards or to shorter delivery times than the competition.
- Technical constraints: The technical and operational specifications that must be respected so that equipment functions properly, such as the calibration of certain measurement devices or respect of the filter cleaning schedule for water filtration plants.

- Legal or regulatory constraints: The legal, regulatory or normative requirements to which the organization is subject due to the nature of its operations. This may refer to the building code in the case of the construction and use of the organization's premises. Another example from a partner in the agricultural sector is the annual filing of a soil fertilization plan with the government on a set date. Failure to respect this constraint results in a penalty.
- Contractual constraints: The consequences of commitments the organization has entered into with its stakeholders. This kind of constraint arises from contracts entered into with clients, which may refer to the quality of the product or the delivery date, for example.
- Security constraints: All the measures required to maintain a safe working environment for the organization's employees and property. An example is monitoring access to the site and restricting it to authorized persons.
- Economic constraints: Economic requirements that are indispensable to ensure the organization's financial survival. This could refer to the market price of the organization's shares or maintenance of a stable cash flow.
- Financial and technical support: This role makes available the human, financial, technological and/or material resources needed to respect the constraint.
- Expertise: This role makes its expertise available to respect the constraint in the new, disrupted environment.
- None: This role continues with its normal activities and has no particular role to play in respecting the constraint, just as in the case of normal operations.

Implementation of planned alternative measures

Several standards are available to guide organizations in managing disruptions that could affect them. The disruption management approach promoted by the National Fire Protection Association and the Canadian Standards Association is the implementation of an emergency management and business continuity program (Canadian Standards Association [CSA], 2014; National Fire Protection Association [NFPA], 2016). Such a program concerns four areas: prevention and mitigation, preparation, intervention and restoration. Prevention activities put measures in place to prevent a disruption from occurring. Preparation concerns identifying and planning alternative measures for the intervention and restoration, by developing plans and procedures. Thus, in the course of intervention and restoration, the various plans and procedures developed during the preparation phase are deployed. These plans include emergency measures and business continuity plans.

An emergency measures plan is a document that indicates how people and property will be protected in case of a disaster and defines who is responsible for each specific measure. It sets out the staff, equipment, facilities, equipment and other resources that will be available during the disaster and explains how all measures will be coordinated (Ministère de la Sécurité publique [MSP], 2009). Organizations manage this kind of situation by following and respecting the procedures described in the plan. This enables them (1) to ensure that workers, stakeholders and the public are safe following an accident; (2) to ensure that normal activities or operations are resumed as soon as possible; and (3) to reduce the environmental impacts of the emergency. The emergency measures plan is a tool for decision-making during the management of emergencies. It identifies the roles and responsibilities and the resources needed to manage the event. However, these procedures are defined based on event scenarios studied during the risk management process; when an actual emergency occurs, it may differ from the situation studied in the emergency measures plan.

A business continuity plan is a set of documented procedures used to guide an organization in responding, restoring, recovering and regaining a predefined level of functioning following a disruption (ISO, 2012). Its purpose is to respond to different disruption scenarios: (1) loss of a facility, (2) loss of access to a facility, (3) loss of telecommunications, (4) loss of employees, (5) loss of

Organizations are also subject to disruptions, which are increasing in number and complexity, and which may affect the respect of constraints. Thus, organizations have to manage these disruptions.

Identification and assignment of roles and responsibilities to be filled in case of disruptions

Every department within an organization plays a role and has responsibilities in respecting its constraints. If a disruption occurs, the organizational change required to deal with it is expressed by changes in these roles and responsibilities, among other things. So it is important to distinguish between the roles and responsibilities involved in the organization's normal operations and those required to manage disruptions. As it happens, our ongoing work with industrial partners shows that, in case of disruption, an organization sets up an ephemeral structure with specific roles and responsibilities that the various players must assume in addition to, or instead of, their usual roles. Inspired by the roles and responsibilities defined by the Business Continuity Institute (BCI, 2018) and by work with our industrial partners, a list of roles and responsibilities to be filled while managing a disruption has been drawn up. They are as follows:

- Leader: This role monitors the constraint to be respected and ensures that all employees who play a role in respecting that constraint are mobilized, informed and given the necessary resources.

suppliers, and (6) loss of essential resources (BCI, 2013). The actions and resources are defined to manage these kinds of disruptions and speed up decision-making if a disruption occurs. These plans are developed based on the definitions of impacts created while planning for the expected impacts on activities. However, during an actual disruption, the impacts may be different; they may also change over time, so the organization must adapt.

Since the process of creating plans requires the acquisition of many kinds of information concerning the organization, it enables the planners to gain knowledge of how the organization operates and the potential consequences of potential disruptions. Making plans is part of organizations' preparation for disruption management, so they can deploy resources and implement alternative measures as fast as possible. The standards on disruption management and guides produced by government agencies show that it is necessary to manage unforeseen events. In fact, the BCI specifies that continuity plans must be adaptable so that they will allow the organization to handle a range of incidents, including ones that it had not foreseen (BCI, 2018). Regarding emergency management, the MSP states that preparation must be flexible and measures must be applicable at any time (MSP, 2018). However, there are no indications regarding what steps should be taken to adapt or to determine whether an organization is able to adapt.

From adaptation to organizational adaptability in the context of disruption management

Organizational adaptation in disruption management

The disruptions anticipated in plans and real-life disruptions are never identical. Since the identification of all possible disruptions is not a realistic goal, managers must combine actions planned in advance and actions made necessary by the actual situation to ensure that an acceptable level of operations is maintained despite the disruptions; in other words, they must demonstrate resilience (Robert, 2010). Previous work has shown that an organization's resilience is based on five components of disruption management, including the organization's adaptation to disruptions in its operating environment (Micouleau & Robert, 2020). By applying Brassard's (2003) definition to the context of disruption, we can define adaptation as adjustment of the management scenarios anticipated in disruption management plans on the basis of the actual disruption (Micouleau & Robert, 2020). Finally, as Brassard (2003) specifies, organizational adaptation requires the organization's response to be coherent with the characteristics of the environment. Thus, disruption management must be adjusted so that it is appropriate for the characteristics of the disruption and the consequences it has for the organization. We shall now describe adaptability in more detail.

Organizational adaptability in a context of disruption management

A case study done on a municipality allowed the development of criteria for analyzing the resilience of municipal organizations (Micouleau & Robert, 2020). These criteria cover the five components of adjustment management, including adaptation. The criteria for analyzing adaptation defined at that time are as follows:

- Existence of a structure for cross-cutting communication during disruption management;
- Existence of debriefings further to disruptions;
- Existence of follow-up on recommendations.

These criteria for analyzing adaptation are centered around the principles of the learning organization, that is, an organization that adapts its disruption management from one situation to the next by learning from previous situations. However, the work done with the municipality highlighted the fact that an organization's adaptation to disruptions is much broader than its nature as a learning organization and constitutes an essential component of organizational disruption management. Thus, the organization not only needs to adapt its management of future disruptions based on those that have already occurred but must also adapt its disruption management throughout the course of any given disruption. Thus, some portion of adaptation in disruption management cannot be prepared for in advance: it is applied when a real disruption happens. Assuming that a capacity corresponds to a set of arrangements and knowledge developed during an implementation (Association Française de Normalisation [AFNOR], 1996), an organization must develop a capacity to adapt – that is, adaptability – which can be analyzed in simulated disruption management. Thus, adaptability corresponds to the temporary adjustment of disruption management processes based on the actual disruption.

There are two kinds of responses in disruption management: individual responses and organizational responses (Paton & Johnston, 2001). When it comes to adaptability, each manager must be prepared to adapt his/her disruption management to the actual situation; this is an individual response. However, if the organization is aiming to maintain its operations as a whole, then it is the organization as a whole that must adapt its disruption management to the actual situation (organizational response).

The following section presents the various elements that make up organizational adaptability in the context of disruption management.

Conceptual framework of organizational adaptability in a context of disruption management

The temporary adjustment of an organization's disruption management processes requires the organization to make decisions in order to achieve this adjustment. This decision-making process is reflected in a tradeoff between

the individual departments' internal management requirements and the constraints affecting the organization as a whole. Indeed, each manager in an organization has management requirements that must be respected to ensure that his/her department runs smoothly. Managers must implement the necessary measures to maintain their departments' operations while ensuring that the organization as a whole functions acceptably. So it is sometimes necessary to set priorities for action in order to minimize the consequences for the operations of the organization as a whole and for its organizational constraints. To do this, decisions must be taken collaboratively and priorities for resource allocation and the assignment of roles and responsibilities must be established. In addition, since disruptions change over time, past decisions are not necessarily still consistent with the changing consequences of the disruption for organizational constraints. Thus, tradeoffs in the assignment of resources, roles and responsibilities among the various departments must be made in real time.

A tradeoff is a way of finding an optimal solution for a decision problem, based on the formalization of this problem and on full knowledge of the situation and the consequences of the various possible choices for the decision-maker, as a function of the various events that are likely to occur (Dosseville & Garnarczyk, 2007). The concept of an optimal solution in disruption management should not be perceived as defining the solution that provides the best result. In fact, disruptions are inherently unusual: unique situations that are unknown until they actually occur. Thus, it is not possible to test different solutions for a given situation and choose the one that performs best. As a result, the concept of optimal solution corresponds more to the ranking of resource allocation and assignment of roles and responsibilities in order to respect the organization's highest-priority constraints.

According to the definition above, a tradeoff must be based on the formalization of the problem and knowledge of the consequences of different choices. In disruption management, the formalization of the problem corresponds to an understanding of the disruption. Knowledge of the consequences of the various choices corresponds to knowledge of the disruption's consequences for the organization's constraints.

The kinds of disruptions to which organizations are subject correspond to unusual situations, which require unusual alternative measures to be implemented. Thus, even if the preparation phase and the process of developing plans made it possible to define the measures to be implemented to deal with such situations, the differences between the real-life disruption and the one in the plan must be identified. The tradeoff necessary to manage a disruption must be based on an appropriate formalization of the situation to be managed. In addition, a tradeoff needs to be based on complete knowledge of the situation and of the consequences of the possible choices (Dosseville & Garnarczyk, 2007). In other words, the organization needs to be aware of the specific disruption's consequences for its constraints. However, disruptions are

situations that change over time. Consequently, the organization needs to build its knowledge of the disruption's consequences for its various constraints while the disruption is happening. Over time, a disruption may affect different constraints. This evolution means that the prioritization of constraints must be reviewed in real time based on the organization's strategic priorities for maintaining an acceptable level of operations.

As set out above, the temporary adjustment of disruption management processes depends on the assignment of resources, roles and responsibilities. Such assignments must be consistent with the understanding of the disruption and the knowledge of its consequences.

All managers seek to respect their own departments' internal management requirements. To do this, they need human, material and information resources. However, the resources available within an organization are limited and must be allocated to the various departments in accordance with the organization's top-priority constraints. Given that the priority of constraints may change as a disruption evolves, resource allocation must be readjusted to deal with these changes.

During a disruption, the various departments perform their disruption management roles and responsibilities, as described above, to ensure that the organization's top-priority constraints are met. Again, since the priority of constraints is likely to change as the disruption evolves, the assignment of roles and responsibilities must be readjusted on the basis of these changes.

Figure 1 depicts the key variables affecting organizational adaptability in case of disruptions and the connections between these variables.

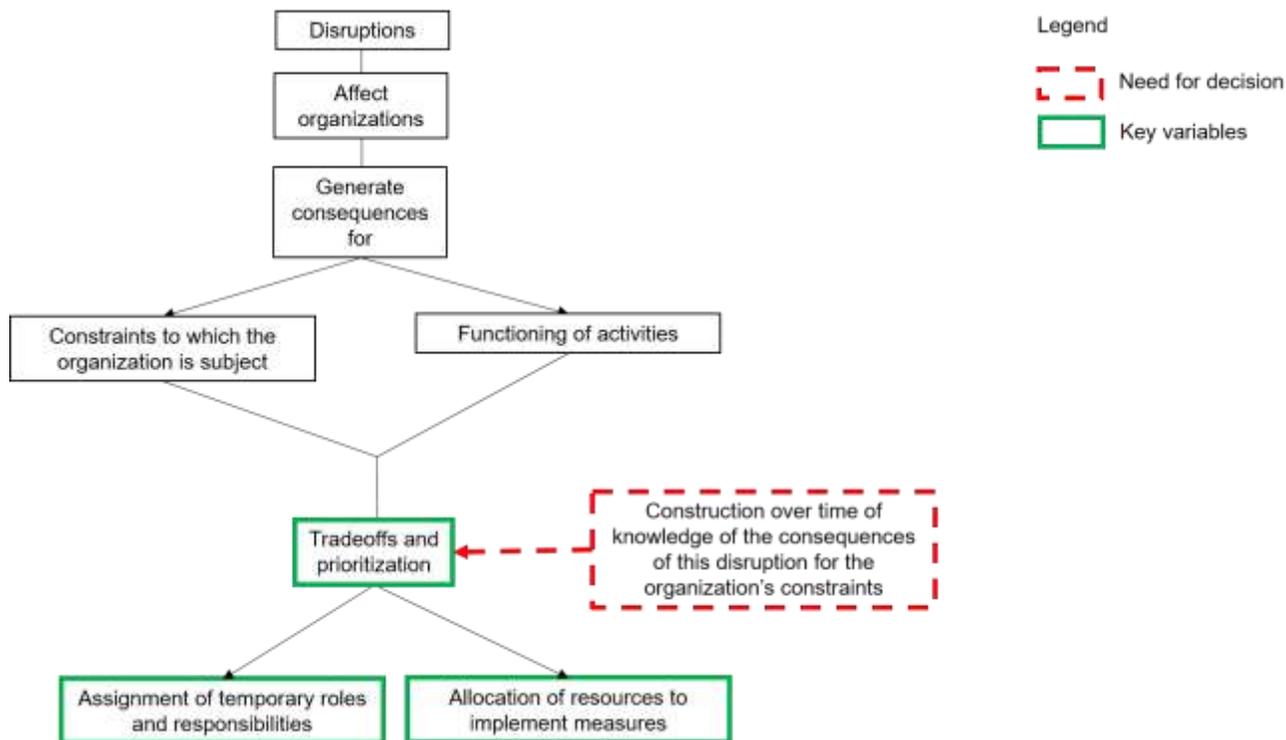


Figure 1: Flowchart depicting key variables in the conceptual framework for organizational adaptability

Figure 1 makes it clear that tradeoffs, as defined by Dosseville and Garnarczyk (2007), are at the core of organizational adaptation. They must be made continuously and must target prioritization in the attribution of both temporary roles and responsibilities and the necessary resources to implement the selected measures. The consequences of disruptions change over time and an organization that adapts must be sure to restore internal coherence (Brassard, 2003). Thus, decision-making must be coherent with the construction over time of knowledge of its consequences for the organization's constraints.

Analysis of the conceptual framework in relation to the current COVID-19 crisis

The conceptual framework presented in this article was developed before the onset of the current global crisis generated by the propagation of the coronavirus. This current, real-life example of the disruption of the functioning of many countries and numerous services offered to the population, as well as its impacts on organizations' activities confirm the importance of building adaptability in order to manage disruptions as smoothly as possible. In many countries, economic activities have been reduced to deal with the health crisis. To this end, governments have required businesses deemed to be non-essential to close in order to avoid spreading the virus. The impact reports prepared during a business continuity operation never envisage a scenario in which the business is forced to shut down. Organizations have had to, and

must continue to, adapt. This kind of adaptation is reflected in a number of ways, such as the unplanned introduction of telework, the reduction in employees' hours, the use of temporary layoffs, the implementation of staggered schedules, the reassignment of employees to other activities, the integration of social distancing into operations, etc. The result is that some activities have been maintained, at least to some degree, while others have been interrupted. This situation highlights the temporary adjustment of management processes that is one of the basic parameters of an organization's adaptability. Adaptability will again be necessary when efforts are made to restart activities while respecting the new rules imposed by governments. This context reveals the true relevance of the concept of tradeoffs. Indeed, organizational constraints have been temporarily modified and priorities will have to reassessed, in the form of tradeoffs, with very short-term, short-term and medium-term objectives. Similarly, new business opportunities may also appear (e.g., the manufacture and sale of masks), which will lead to the emergence of new constraints. This prioritization of organizational constraints will require tradeoffs in resource allocation and the assignment of roles and responsibilities based on temporary changes in activities.

The COVID-19 pandemic highlights the true importance of the concepts of tradeoffs and organizational constraints in relation to an organization's adaptability and ability to manage increasingly complex disruptions. Consequently,

these two concepts should be the core of any assessment of an organization's capacity.

Conclusion

The preparation phase and the process of developing plans contribute substantially to the effectiveness of disruption management. However, organizations operate in a changing environment, subject to multiple disruptions, which sometimes cannot be identified until they happen. In order to be resilient, organizations need to become adaptable so that they can manage these unforeseen events and ensure that an acceptable level of functioning is maintained despite disruptions. The conceptual framework developed here defines adaptability and sets out the elements that compose it. Adaptability corresponds to the temporary adjustment of disruption management processes on the basis of an actual disruption. This capacity requires an organization to make tradeoffs between its various departments' internal management requirements and its constraints when it assigns resources, roles and responsibilities. These kinds of tradeoffs depend on an understanding of the real-life disruption and how it differs from the disruptions anticipated during planning.

Moreover, disruptions are evolving situations, so an organization must build its knowledge of the disruption's consequences for its own constraints. That will enable it to adjust the allocation of resources, roles and responsibilities to handle its highest-priority constraints. Finally, because adaptability can only be demonstrated during an actual implementation, the analysis of adaptability relies on simulations, which must make it possible to analyze whether the assignment of resources, roles and responsibilities is consistent with the changes in the disruption's consequences for the organization's constraints. These analyses must be conducted at the organizational level and cover the various departments without judging managers' individual capacities. They must make it possible to modify business continuity plans in order to enhance adaptability and develop disruption management mechanisms that will promote organizational adaptability. Additional, more wide-ranging studies will focus on the development of simulations to analyze and assess adaptability.

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