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Crisis Management Perspective of the Development, Adoption and Market Diffusion of Disruptive Technologies

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Abstract

Advanced technologies and the associated business models that disrupt existing market structures often undermine the position of certain professional and social groups while benefiting others. This disruption poses significant threats to the efficient functioning of businesses. The disruptive nature of these technologies leads to turbulence and chaos in the external environment, characterized by high dynamics, rapid changes, increased uncertainty and unpredictability, heightened system complexity, and reduced decision-making times. The article delves into the crises generated by the introduction of disruptive technologies to the market, focusing on their management and their implications for the strategic management of business organizations. The study explores the interconnections between crisis management and other related concepts, such as business continuity management, risk management, and disaster recovery, emphasizing their complementary roles in overall organizational change management. The relationship between resilience and disruption disaster management is also analyzed. This article examines approaches to crisis management arising during the creation, adoption, and deployment of disruptive technologies with special attention given to the current state of crisis management frameworks and their applicability in the disruptive technological and market development processes. It further proposes effective approaches and methodologies for managing and resolving these crises. Additionally, algorithmic solutions are presented to address crises stemming from technological change and the continuous emergence of disruptive technologies.

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1. Introduction

Building on advancements in modern science, which has developed various tools to assess the disruptive potential of technologies, this paper aims to propose an enterprise crisis management model tailored to resolve crises associated with the development and deployment of disruptive technologies. In the context of continuous technological change, such a model is essential for economic activities that seek to create value and maintain a competitive edge.

Conducting comprehensive, multidimensional analyses across business organizations is critical to identifying specific threats and vulnerabilities. This necessity arises primarily from the need to manage crisis risks, which focus on mitigating both existing and potential risks across different organizational domains. Activities that are directly influenced by disruptive technologies require particular attention, as these areas are most vulnerable to the effects of technological disruption.

In addition to risks, it is essential to consider their counterparts - crises. Crises have become a natural and persistent state of the modern environment, accompanying human and organizational activities continuously. Recognized as a socio-economic phenomenon since antiquity, crises have garnered heightened attention in recent decades due to the rapid development of information and communication technologies, which have significantly contributed to their spread. Large-scale crises of a global nature - such as earthquakes, terrorist attacks, wars, financial and economic crises, pandemics, and others - severely disrupt the sustainability of individuals, organizations, and institutions. Among these, crises driven by technological advancements and their resultant changes are increasingly prominent.

The central research question of this paper is: What model of crisis management should business organizations adopt to effectively address the risks and crises arising from the introduction of disruptive technologies?

The research hypothesis posits that the effective management of risks and crises caused by disruptive technologies within a business organization is achievable through the implementation of an integrated organizational crisis management model. Such a model should prioritize the unique challenges and risks posed by disruptive technologies, ensuring that businesses can achieve long-term success in an increasingly volatile and uncertain environment.

2. Crisis Management Concept

Crisis management involves the identification, preparation, and effective response to unexpected events or disruptions that threaten an organization's stability, reputation, or operations. It requires swift decision-making, clear communication, and coordinated actions to mitigate risks, minimize damage, and ensure recovery. Proactive planning and adaptability are key to successfully navigating crises and maintaining resilience in dynamic environments.

Every enterprise encounters crisis states during its development. While some crises lead to negative consequences, others present opportunities for a new beginning. The studies of S. Fink (1986), D. Smith (2006), I.I. Mitroff (1994), T.W. Coombs (2007), and M.W. Seeger, T.L. Sellnow & R.R. Ulmer (2003), among others, provide a theoretical foundation for defining the life cycle of crises, typically divided into three stages: pre-crisis, crisis, and post-crisis.

Crises can arise at any stage of an organization's development - whether during its inception and growth, stabilization and expansion, or the decline phase of its life cycle. Mitroff and Anagnos (2001) aptly describe a crisis as "an event that affects or has the potential to affect the entire organization."

Zafirova and Bachvarova (2018, p.73), as well as Zafirova (2014), define an organizational crisis as "the emergence of dramatic phenomena and processes in the external and/or internal environment of the organization, which have a direct or indirect impact, rendering previously used management methods ineffective and impairing its viability." As organizations function as interconnected systems, disruptions to one element often cascade, impacting the entire system. This interdependence underscores the importance of a systematic approach to studying organizational crises, encompassing their symptoms, causes, and consequences.

External environmental changes often act as catalysts for crises by generating negative phenomena or exacerbating internal tensions within organizations. Effective organizational crisis management must therefore begin well before a crisis manifests. Ideally, crises can be averted through robust early-warning systems, managerial foresight, and a thorough understanding of crisis evolution. Defining and comprehending the life cycle of crises is critical, as early detection of pre-crisis symptoms significantly mitigates instability. Furthermore, during the post-crisis phase, analysing the crisis's evolution enables managers to identify its root causes and develop preventive strategies for the future.

Crises often unfold in cycles, with the resolution of one crisis sometimes triggering another. As Zafirova (2019) notes, effective decision-making during a crisis is vital for a positive outcome. These decisions must be strategic, as crises are typically linked to chains of negative events requiring comprehensive management. From analyzing diverse research on crisis life cycles, Zafirova (2019) synthesizes several key conclusions. Different conceptual frameworks in the literature vary based on whether they consider only the crisis event itself or also account for the pre-crisis symptoms and post-crisis prevention systems.

T.W. Coombs (2007) integrates earlier models by Fink (1986) and Mitroff (1994) into a unified three-stage framework for crisis management: **pre-crisis, crisis, and post-crisis.** This model offers a structured approach to understanding crisis dynamics. When addressing crises triggered by disruptive technologies, particular emphasis should be placed on the first two stages - pre-crisis and crisis.

- The **pre-crisis stage** involves the incubation period, characterized by warning signals that precede the crisis.
- The **crisis stage** comprises a series of events leading to instability or critical moments, culminating in decisive change.

In the sections that follow, we argue for the selection and implementation of appropriate concepts and tools for managing crises, particularly those driven by technological disruption.

To effectively manage crises, it is crucial to understand them as processes grounded in causal chains. Zafirova outlines this causal chain as comprising **causes, symptoms, factors, progression (stages), and consequences**:

1. **Causes** are events or phenomena that give rise to the symptoms and factors of a crisis.
2. **Symptoms** are external manifestations or indicators reflecting negative trends in the organization's functioning or development. However, symptoms do not always reveal the true causes of a crisis.
3. **Factors** are events that indicate a specific state or trend within the organization, signalling an impending crisis.
4. **Stages** define the sequence of phases the organization undergoes during the crisis's emergence, development, and resolution or failure to resolve.
5. **Consequences** represent the outcomes of the final crisis stage.
6. **Scale** denotes the crisis's scope, which can range from localized to systemic.

Understanding the causes is paramount, as they determine the symptoms and factors that signal a crisis. Zafirova (2019, p.65) identifies three primary sources of organizational crises:

1. **Internal causes**: These arise from relationships and interactions between individuals, structural units, and management levels. Examples include managerial conflicts, employee dissatisfaction, structural changes, financial mismanagement, and lack of coordination or accountability.
2. **External causes**: Changes in the external environment often necessitate swift managerial responses to avoid crises. Stakeholder pressures and external disruptions are significant contributors.
3. **Systemic causes**: The interconnections between internal and external elements create compounded risks, particularly when management errors exacerbate vulnerabilities.

Given the complexity of crisis causality, early detection and timely responses are critical. This necessitates continuous monitoring of environmental factors and proactive adjustments to prepare the organization for emerging challenges.

Regarding crises related to disruptive technologies, achieving this goal requires action in two primary areas:

1. **Adapting and applying tailored tools** for crisis management concepts relevant to technological disruption.
2. **Utilizing forecasting and change management techniques** from the strategic management toolkit.

The following section explores the first direction in detail.

3. Crises Generated from the Creation and Introduction of Disruptive Technologies in the Market

Changes in the environment inevitably lead to adjustments in an organization's activities. When these changes are driven by key environmental factors - both external and internal - and have a negative impact, the conditions for a crisis within the organization are created. The challenges of strategic crisis management arise from environmental changes and the organization's inability to respond adequately. Research has demonstrated that a specialized diagnosis, involving a thorough analysis and evaluation, is essential. This process must be conducted swiftly and address the factors specific to the organization and their determinants.

Full development and implementation of disruptive technologies can bring extensive and multivariable effects on economic life. While being drivers for innovation and creating new markets, at the same time, they may create serious risks to individuals, notably in the potential loss of prestige for certain professional and social groups. The rapid acceleration of technological changes, especially within the auspices of the so-called Fourth Industrial Revolution, transforms the economic structure through changes in the firm, the products, and the consumption patterns. While the perturbation characterizes the rapidity of the change, a vast range of technologies has been integrated, turning this environment very dynamic and uncertain.

The complexity of such issues demands an analytical framework based on risk evaluation. In today's world of interdependence and increasing perils, it becomes mandatory to understand the impact of those disruptions on established market paradigm. While technological advances accelerate globalization and create significant benefits, at the same time, they also increase societal vulnerabilities, crises, and conflicts. Whether an organization is a creator or a potential victim of disruption, economic activities must navigate the risks of disruptive technologies. There is a pressing need for models able to estimate the impact of disruptive technologies, considering the risk, crisis, and conflict such technologies will bring about. Such models need to take into consideration driving factors behind "creative disruption" and help organizations manage such effects crucial for their survival and growth. Existing research into risk, crisis, and conflict often lacks such a comprehensive framework that integrates the implicated dynamics between these concepts. The push for technological change is from the urge to solve challenges and apply such solutions towards growth and societal evolution. However, each advancement emphasizes the importance for organizations to have a robust crisis

and risk management that could withstand major disruptions-occasioned events among others.

4. Crisis Management and other Related Concepts for Major Disruptions Response

Crisis management is often viewed as an integral component of broader concepts aimed at overcoming crises. It shares relationships with related fields such as risk management, business continuity management (BCM), and disaster recovery. These concepts are interconnected, both directly and indirectly, and understanding their relationships enables more effective application in the practice of managing business organizations.

The detailed connections between these concepts have been outlined by Supriadi and Sui Pheng (2018). For the purposes of this paper, we utilize their summarization of the distinctions between these concepts, which is based on their primary focus and underlying methods, as a foundation for further analysis.

The **risk management** concept emphasizes comprehensive, organization-wide identification and assessment of risks. It evaluates risks based on their likelihood and impact, followed by the selection of appropriate risk responses. In contrast, **business continuity management (BCM)** focuses on events that cause significant business disruptions. BCM prioritizes the impact of such events, and the time required for the organization to resume normal operations, rather than emphasizing the probability of occurrence.

BCM is closely linked to crisis management through its incident management component. Within the BCM framework, incidents vary in scope and severity, typically activating the BCM plan. Crisis management, however, is often regarded as the domain of communication and public relations (PR) professionals, with BCM practitioners playing a supportive role when involved. Moreover, crisis management extends beyond physical events to include non-physical challenges such as financial performance issues and reputational damage.

Disaster recovery, on the other hand, specifically addresses technology-related problems triggered by external factors. It focuses on implementing a response capability to handle specific events that threaten business continuity. Essentially, disaster recovery involves creating a plan, supported by the necessary infrastructure, to be enacted in the event of a disaster. As such, disaster recovery is a subset of BCM, alongside contingency planning, high-availability planning, and similar strategies.

From these brief definitions, it is evident that the concepts discussed are not competitive but rather complementary and overlapping. Their integration is especially relevant to the issues addressed in this paper.

The focus and key methods underlying each concept are of critical importance. Leveraging their synergies requires not only a thorough understanding of their inherent methods but also skillful application in practice through tailored combinations. It is the fusion of these concepts, rather than their mere aggregation,

that has the potential to generate qualitatively new management outcomes - particularly in the context of the ongoing disruptions in the economy and society.

Table 1: Crisis Management distinction with other related concepts

Concept	Main Focus	Key Method
Crisis Management	Focuses on immediate activities needed during an incident. It mainly deals with the first few hours of the incident, detailing key decision makers and communication strategies with customers, clients, and regulators.	Risk analysis and contingency planning; sensing early warning signals of a potential crisis.
BCM	Concerned with events that cause significant business disruptions, focusing on the impact of an event and the time required for an organization to return to normal operations.	Business impact analysis; identifying critical business functions (CBF) and minimum business continuity objectives (MBCO).
Risk Management	A thorough organization-wide identification and assessment of risks, evaluating them in relation to their likelihood and impact before identifying an appropriate risk response.	Risk analysis and assessment; identifying risk responses.
Disaster Recovery	Concentrates on technology-based problems triggered by external factors, emphasizing the recovery of core operations after a disruption.	Contingency planning; emphasis on the recovery of core operations.

Sources: Adapted from: Supriadi and Sui Pheng (2018), Collier (2009), Drennan and McConnell (2007), BCI (2007a), Foster and Dye (2005), Devlin (2007), Smith (2003), Elliott (1999), McCrackan (2005).

Effectively combining the strengths of each framework can significantly enhance an organization's ability to respond to major disruptions that threaten its business operations. We propose a method to achieve this. However, before presenting our approach, it is essential to examine the role of resilience and disaster management and their connection to this topic.

4.1 Resilience and Disruption Disaster Management

While there are varying perspectives, all the concepts discussed above are rooted in the idea of resilience. Despite these differences, the concept of resilience is relatively straightforward. According to Lloyd, resilience refers to the ability of a system, entity, community, or individual to withstand shocks while maintaining its essential functions. Lloyd (2014) argues that resilience also involves the capacity to recover quickly and effectively from a catastrophe, as well as the ability to endure greater stress. However, in the context of our discussion, the definition provided by McCreight (2011) is more fitting: resilience is the ability of a system to withstand or rapidly recover from significant disruption.

The definitions of resilience encompass various characteristics and key terms, often shaped by the specific conditions of the domain. These approaches involve a coordinated combination of tasks, strategies, technologies, activities, plans, and innovative concepts aimed at enabling society - and, in particular, business organizations - to resist, absorb, withstand, and recover from both external and internal threats to their existence. In each case, a contingency approach is essential to assess the risk of these events, evaluate society's (and especially business organizations') innate capacity to respond, recover, and establish mechanisms that go beyond basic emergency preparedness and response.

So, how can this be applied when discussing disruptive technologies? How can we overcome the crises and conflicts that disruptive technologies generate? The answer lies not just in disaster recovery or crisis response; rather, it requires a business-driven, ownership-based process that integrates a wide range of management disciplines. But what should we do when the disaster strikes?

Disaster management theories, policies, and tools have evolved over time. Their ideas and principles are fully applicable to the objectives we have set, once adapted appropriately. The sector has recognized that there must be better ways to manage and prevent disasters than merely responding as they occur. The concept of a 'disaster management cycle' has emerged, which, although it has several variations, generally includes the phases of mitigation, preparedness, response, and recovery.

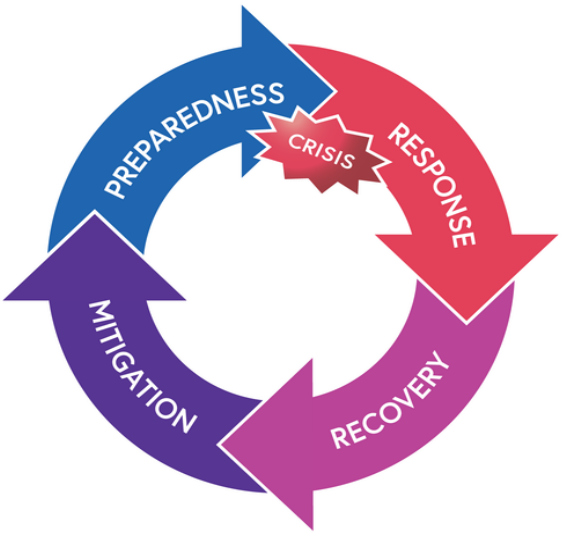

Figure 1: Disaster management cycle' (Adapted from Alexander 2014)

The traditional circular model of the disaster cycle oversimplifies what is, in reality, a more complex sequence of phases. The second diagram presents an alternative version of the 'disaster cycle' from a practitioner's perspective. This version more accurately reflects the multi-layered, overlapping phases that are typically encountered in practice.

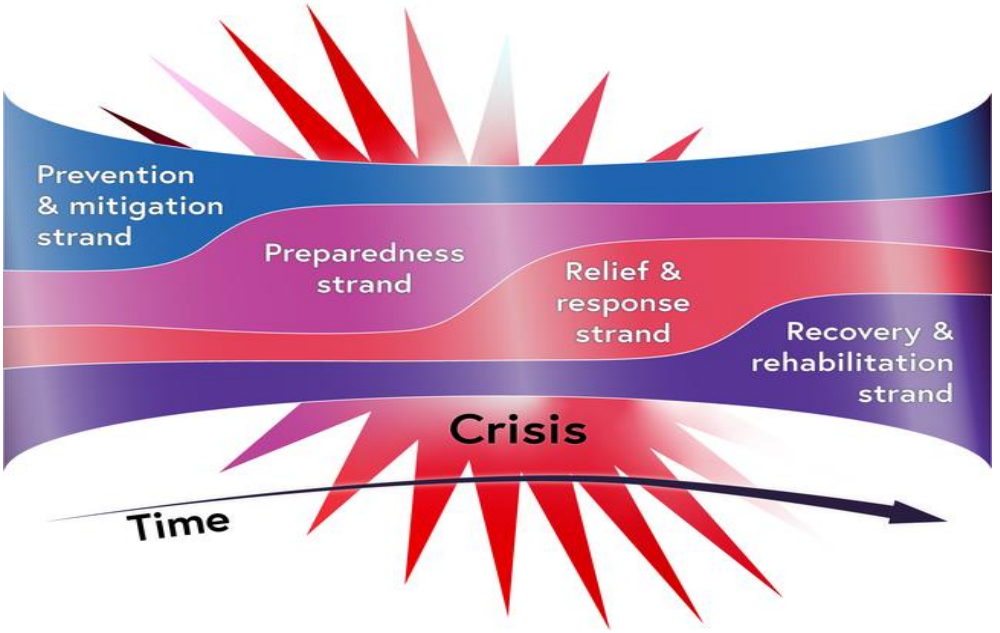

Figure 2: Practitioner's perspective version of the 'disaster cycle' (Adapted from Davis 2016: 74)

We argue that as more stakeholders become affected by disruptive technologies, the focus will shift from disaster response to risk reduction. This approach can complement crisis management related to disruptive technologies. This shift is due to the evolving focus in disaster research and interventions, from vulnerability-based strategies to disaster risk reduction, towards a more holistic, resilience-based approach. This new paradigm integrates elements from development, sustainability, and climate change agendas. Since the turn of the century, the concept of resilience has gained significant traction and is now used in two distinct contexts, each with its own conceptual framework.

From an organizational perspective, resilience activities often emphasize risk management and preparedness. In contrast, when discussing resilience in relation to communities and the social aspects of disaster, the term synthesizes views from multiple academic disciplines, including ecology, psychology, social sciences, and sustainability and development, each highlighting different components of resilience. A contemporary overview of disaster response management (DRM), which reveals the roots and dimensions of the resilience concept, is provided by Rajabi et al. (2022).

As organizations increasingly encounter the challenges posed by disruptive technologies, the shift towards resilience and risk reduction becomes critical. This is particularly true when changes in the external environment trigger shifts in an organization’s operations, often resulting in crises. These crises, generated by the introduction of disruptive technologies, highlight the growing need for a strategic approach to crisis management. When organizations fail to respond adequately to such changes, the risk of crisis intensifies, underscoring the importance of timely and specific diagnoses, including comprehensive analyses of both internal and external factors.

5. The Relationship Between Crisis Management and Strategic Management

Although strategic management and crisis management have traditionally developed as distinct areas, there is significant potential for their synergistic integration. A new approach to strategy is needed in the context of uncertainty, insecurity, and risk, especially when crises are frequent. This underscores the necessity of combining crisis management and strategic management approaches. Their integration can reduce decision-making uncertainty and strengthen future organizational planning (Zafirova, 2021a).

Zafirova's (2021b) research emphasizes that organizations must recognize the symptoms of strategic crises as the first stage in preventing or mitigating organizational crises. By preserving its strategic position, an organization can avert or minimize the damage of a potential crisis. If an organization fails to anticipate changes in time, respond adequately, and adjust its development trajectory, even well-executed strategies will eventually stagnate, leading to failure.

Over the years, numerous researchers have explored the relationship between environmental change and organizational viability. Ansoff (1979) proposes specific management systems tailored to organizations facing varying levels of environmental turbulence. Teece (1997), a pioneer in dynamic resource capabilities, studies strategic management in changing environments. Moncrieff (1999) examines how changes in the environment can lead to crises through strategic dynamics. Valikangas (2010) defines organizational sustainability as "the ability to undergo profound change, with or without crisis."

Kounoupas (2006), through a review of literature, demonstrates the connection between crisis management and strategic management. He identifies significant similarities between strategic analysis and environmental assessment, citing renowned scholars. In this context, environmental change, a primary source of disruption, is a crucial element in diagnosing organizational crises - a process also central to strategic management. Disruptiveness, as a phenomenon impacting the functioning and development of an industry, is shaped by changes in other industries, even when there is no direct interdependence. As Boin et al. (2003) note, "small bugs in one network can cascade into large-scale failures in other networks."

We align with Zafirova's (2021b) assertion that the primary mistakes leading to organizational crises are often shared by strategic management, thus causing overlap between the two areas. These mistakes typically arise from poor management and the failure to account for early warning signals from the environment. These errors can be attributed to ineffective leadership or insufficient management practices.

The changes in the environment that are difficult to predict and can lead to significant organizational crises can be grouped into the following categories:

- **Innovation**, which may drive businesses to bankruptcy
- **Government regulation**
- **Climate change**
- **Natural disasters and fires**, whether accidental or deliberate
- **Raw material shortages**
- **Shifts in consumer preferences**
- **Overproduction of certain products**, leading to oversupply, price reductions, and financial losses
- **Over-importation of lower-priced products**
- **Emerging competitors or changes in existing competition**, where new entrants quickly find a niche despite apparent barriers

Strategic organizational crises often stem from the absence of a cohesive strategy or the lack of forward-thinking strategic planning. In practice, such crises occur when leadership loses sight of the strategic direction. Moreover, changes that are difficult to predict - like disruptive technologies - can precipitate crises. These technologies exemplify the type of disruptions outlined above, and we will now continue our analysis by focusing on how to predict and manage their impact.

6. Organizational Life Cycle and Types of Crises in the Organization: Organizational Theory as a Tool for Crisis Management

In recent years, the focus of crisis management has increasingly shifted towards crisis prevention rather than solely crisis response. This approach is highlighted in the study by Smith & Sipika (1993), who emphasized the importance of pre-emptive measures. According to them, all potential consequences should be thoroughly considered, and contingency plans should be formulated. In addition to natural crises, other types of crises have emerged that are cascading in nature. Modern conditions have transformed the environment, making it increasingly dynamic and turbulent, which in turn complicates the process of creating pre-emptive scenarios for individual crises within a portfolio. Disruptive crises are particularly characteristic of this complexity. This shift does not imply that the spectrum of crises should be narrowed; instead, it underscores the need to broaden the crisis management approach, incorporating both traditional and non-specific crises. A periodic assessment and analysis of potential risks remain essential, as sudden crises can devastate an organization unprepared for them.

While strategic management generally focuses on creative and proactive decision-making, crisis management addresses the disruptive aspects of organizational life. The role of strategic management methodology in crisis management is pivotal. It serves as a guiding framework, steering the organization toward its goals during a crisis and balancing the interests of various stakeholders. Strategic management helps allocate resources efficiently, ensuring that the organization maintains a process-driven approach to crisis resolution (Zafirova, 2021a).

Organizational theory also plays a vital role in crisis management. In this context, knowledge of crises and their potential forms serves as a foundation for developing strategies to prevent or mitigate their negative impacts while enhancing positive outcomes. Drawing from T. Levitt's (1965) classical concept of the organizational life cycle, which posits that all entities - be it products, organizations, or industries - undergo a finite lifespan from inception to decline, we can identify several transitional periods. Levitt's cyclical model of system viability at different life cycle stages offers an insightful framework for categorizing crises that organizations may face. This model is particularly useful when examining the impact of disruptive technologies, drawing parallels to the invention cycle. While debatable, this framework serves as a starting point for discussion and analysis.

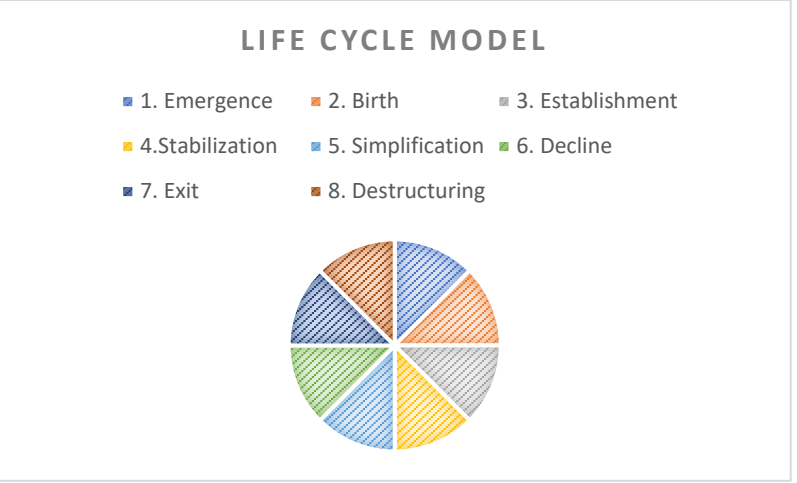

Figure 3: Classical concept of the life cycle (Adapted from T. Levitt 1965)

The model presented in the figure provides a visual representation of Levitt's concept, which can be further enhanced by drawing parallels with the invention cycle.

Emergence (First Period): This period is marked by the inception of the new system. In the invention cycle, it corresponds to the emergence of the first idea or technical solution. Crises during this phase can be categorized as **formation crises**, as the system begins to take shape.

Birth (Second Period): The new system begins to manifest in tangible terms, akin to the birth of a living organism in the invention cycle. This stage witnesses **formation** and **functioning crises**. The focus here is on aggressive strategies to occupy market niches and develop the organization's potential.

Establishment (Third Period): This stage is characterized by the drive to establish a viable system, much like the creation of the design scheme in the invention cycle. During this phase, **organizational functioning and development crises** become prominent.

Stabilization (Fourth Period): The system reaches maturity and experiences slower growth. The invention cycle corresponds to the realization of a practical technical system. **Developmental crises** become more common, as the system stabilizes and seeks optimization.

Simplification (Fifth Period): At this stage, signs of decay begin to appear, indicating the system's transition to the next life cycle phase. In the invention cycle, this corresponds to the optimization phase of the technical system. Here, **developmental crises** and **functioning crises** emerge.

Fall (Sixth Period): The organization's vital indicators decline significantly, and in the invention cycle, this period relates to improving the technical system through rationalization proposals. This stage is defined as a **crisis period**, where **functioning**, **development**, and **transformation crises** prevail.

Decline (Seventh and Eighth Periods): These stages mark the final decline of the organization's core functions. If the system fails to transform, it ceases to function. At this point, the system decays, and **system viability** indicators fall to their lowest levels.

The cyclical model of organizational viability proposed by Zafirova (2014) is an idealized framework, serving as the basis for analyzing organizational crises. It emphasizes the inevitability of crises in the life cycle of any organization. This model, when combined with the typologies of crises proposed by Mitroff, Shrivastava, and Udwadia, as well as Greiner's growth-phase crises, offers a robust explanatory tool. These models facilitate the application of crisis management strategies to guide organizations through their development and into the crisis resolution phase.

7. An integrated Model of Organizational Crisis Management – the opportunity

Crisis management should prioritize both crisis prevention and response, applied at various organizational levels: corporate, strategic business units, and functional departments. This focus inherently limits the scope of the research presented in this paper, as the proposed models and tools are primarily suited for medium and large enterprises. These organizations typically possess the capacity and need to develop integrated crisis, risk, and conflict management systems. In contrast, micro and small enterprises - particularly in Bulgaria, where this research will be applied - often do not recognize the necessity or have the capacity to implement modern approaches for managing these processes. However, elements and modules of the proposed risk management model could be adapted and implemented by micro and small enterprises, should they recognize the need for such systems.

We have chosen to apply Zafirova's model in this research as it effectively synthesizes both the scientific and practical advancements in crisis management, linking them to strategic management aspects. Besides strategic, crisis, and risk management, what can be considered key processes in today's society and economy? Zafirova's model successfully integrates these two critical areas - crisis management and risk management - crucial for the survival and development of modern organizations. Throughout this paper, we will present arguments supporting the applicability and relevance of this integrated approach.

This model aligns with the primary focus of the study - "Implementation of Disruptive Technologies: Risk Assessment" - of which this paper is an element showcasing the achievements of key Bulgarian researchers in these fields. We believe that the specific contributions of Bulgarian scholars in crisis and risk management remain underappreciated by the global academic community.

Promoting and discussing these contributions in the context of practical issues related to our research is an important objective of this study. Furthermore, applying these insights to solve real-world problems in the Bulgarian context addresses the challenge of adapting global solutions to local economic and managerial peculiarities.

The integrated model presented in Figure 4 includes key stages that reflect significant aspects of organizational activities. While a detailed exploration of each stage, element, and system is beyond the scope of this paper, it is important to clarify the necessary management systems for practical implementation of the model: these include the risk management system, environmental diagnosis and crisis audit system, early warning system, and crisis information system, labelled in Figure 1 as elements A1, A2, A3, and A4, respectively. The primary requirements for applying this model are a clear recognition of the need for its implementation and the availability of skilled professionals to carry it out.

This model is conceptual and generic, applicable to all non-financial organizations. What makes it particularly valuable is that its individual components or stages can be selectively used to assess or make strategic decisions in response to crises. The continuous updating of the information within the model ensures rapid adaptation to changes in the internal and external environment of the organization. In today's disruptive economy, such rapid responses are critical.

Preventive action against potential crises, including those of a disruptive nature, begins with the establishment of crisis management systems, plans, and scenarios. It is no coincidence that the crisis risk management system is identified as a core component of the proposed model. Essentially, the model focuses on the execution of the following stages, each with its specific objectives (see Figure 4):

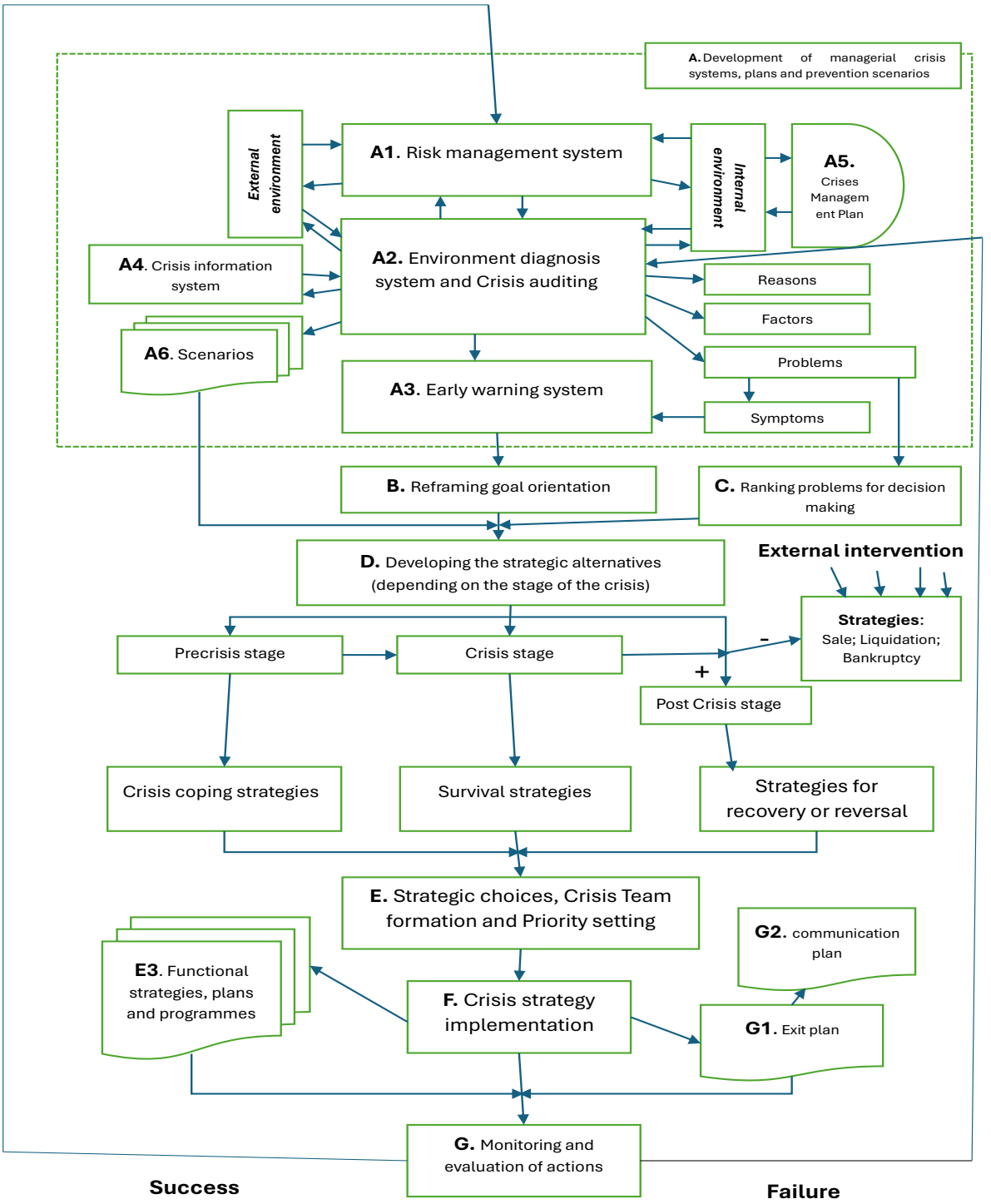

Figure 4: Crisis Management Integrated Model. Adapted from Zafirova (2014, pp. 272)

Organizational crises are events that threaten the most important goals of survival. Those provoked by the destructiveness of technology are not much different, both in their results and in their symptoms. Gonzalez Herrero and Pratt (2006), as well as Timothy Coombs (2007), rightly argue that although the crisis is often sudden and unpredictable, it is by no means unexpected and there are always early warning signals for it. Therefore, an adequate early warning system for crises is of fundamental importance for the ultimate success of the entire crisis management system in the organization. Crisis forecasting is a complex set of methods and interactive processes designed to help their strategic management be more adaptive and more oriented towards unpredictable conditions, such as the conditions that create technologies that have the quality of disruptiveness. The presented methodologies have the pretensions and the potential to become the basis of an integrated crisis management system in business organizations after appropriate testing. A set of empirical studies is foreseen for its validation. You will learn more about them and the results of our research on them in future publications. Conflict management is a part of risk management in an organization. Especially those related to disruptive technologies.

8. Conclusions

We accept the thesis that every crisis in an organization must be managed strategically before it occurs. The interdisciplinary approach to the study of organizational crises typically emphasizes economic, financial, and psychological aspects, while often neglecting the managerial dimensions. This is likely because organizations tend to focus on reactive measures - responding to crises after they arise - rather than proactively managing and preventing potential disruptions. It follows, therefore, that the focus should shift toward detailed, preventive management of these processes.

The interaction between technological change and the subsequent shifts in economic and social activities has been studied from various perspectives for some time. A significant portion of today's advanced technology is disruptive in nature, and understanding its effects requires not only revisiting existing theories and methodologies regarding technological change, but also considering "creative disruption" as a result of deliberate intellectual efforts. Disruptiveness unfolds as a process starting from technological disruption, moving through economic disruption, and ultimately leading to risks, crises, and conflicts.

To fully grasp the dynamics at play, it is essential to apply a holistic approach that explores the relationships between technological change, problem-solving, "creative disruption," risks, crises, and conflicts. This connection brings us to understand that crises, especially those fuelled by disruptive technologies, often give rise to conflicts, which remain an underexplored field in crisis management research. It is an area we are already investigating in our work (Molhova and Ivanov, 2023).

Crises generated by the introduction of disruptive technologies in the market require

new and unique study approaches and models for effective management and resolution. The technological change-driven crises are defined, and their key characteristics are examined to propose a descriptive model for their resolution. Further research into the cascading effects of technological disruption, first in the technological field and then in the economic activities of market players, marks a crucial step in understanding the relationship between these two types of disruption.

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