Wieś i Rolnictwo 4 (205)/2024
ISSN 0137-1673
E-ISSN 2657-5213
doi:10.53098/wir.2024.4.205/02

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Expanding into a VUCA World: Reflecting on Crisis Management in the Aftermath of EU Expansion

Abstract: As part of a reflexive process on the past twenty years since the expansion of the European Union (EU), this paper outlines elements of crisis management theory as a means of considering a range of issues that the EU and its members might need to consider as it moves into the next phase of its development. The paper uses the UK's Bovine Spongiform Encephalopathy (BSE) crisis as an initial means of illustrating the fragility of the food system and focusses on the ways in which crises can become embedded in "normal" activities within organisations. The paper concludes by contextualising the processes around the generation of crises within a VUCA – volatility, uncertainty, complexity, and ambiguity – driven environment as a means of setting out a provocation for considering some of the challenges facing the food sector and the implications for the EU from further expansion in a VUCA environment.

Keywords: crisis management, VUCA, food security.

1. Introduction

> Crisis […] opens a space for critique; it lays bare the precariousness of the existing order and the tensions and contradictions on which it rests. It suggests, in other words, the possibility of alternatives (Wilkinson 2013, p. 529).

A reading of the news coverage in recent months would suggest that uncertainty and ambiguity are the hallmarks of the current political, economic, and social

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environments. The prevalence of claims relating to fake news and the continued erosion of trust in public institutions remain issues, as do claims made by political figures without the provision of any supporting evidence. End-to-end encryption in social media, for example, has been highlighted recently as an issue which allows exploitative forms of criminal behaviour to occur undetected despite being introduced to address privacy concerns. The dynamic nature of the information space has begun to generate new forms of problematic behaviour, from cyber-bullying and harassment to enabling criminal entities to operate largely without detection, whilst at the same time enabling the spread of contingency theories and disinformation. Mis- and dis-information have become critical in the onset of conspiracy theories which have the potential to generate shocks to the system as trust in public bodies is eroded. The wider political environment is also extremely volatile, with the war in Ukraine having an impact on international relations, and the lack of trust is amplified by hostile state interference in the information space though social media and propaganda. The complex nature of the environment is reflected in the policy landscape, with emergent conditions being generated as a function of the interactions that occur between elements of socio-technical systems. This emergence creates largely unforeseen conditions, such as the attempts to cut aid programmes in both the USA and the UK, for which many dependent organisations may have no effective contingency plans, and which have the potential to escalate into a crisis at a local level.

These examples point to the significance of a so-called VUCA environment – a term developed by the US military to describe the challenges of the post-Cold War environment (Bird 2018; Mack, Khare 2016) – in which the volatility, uncertainty, complexity and ambiguity that prevailed at the time was highlighted, and which clearly continues into the present day. It was into this VUCA world that the 2004 expansion of the EU took place and the intervening 20 years have simply reinforced the importance of the VUCA elements in policy and practice, perhaps most notably around how society deals with issues of risk, vulnerability, resilience, and security. These VUCA elements highlight the importance of taking a holistic (systems-based) perspective on the nature of the crisis process. As Michael Wilkinson observes in our opening quote, many organisations and public institutions are precarious, and the current operational environment is often so complex that it beguiles those who manage organisations such that they are unable to adequately deal with the task demands that they face. Again, echoing Wilkinson's opening comment about crises generating a space for critique, the period since the 2004 EU expansion addressed in this special issue highlights some of the challenges that face "management" theory and policy practice in such a complex environment. In particular, the siloed, often short-term, approach to dealing with multi-disciplinary problems requires

a more holistic, systems-based, perspective which recognises that uncertainty is a dominant factor in the generation of crisis potential and that control is often fleeting and limited to a relatively narrow set of conditions. These issues are particularly evident in terms of food security, where the fragility of the food production and distribution processes can be disrupted by a range of perturbations that expose the "just-in-time" nature of the system, set within a global market, with interconnected and potentially vulnerably supply chains. Crisis management theory has the potential to highlight some of the issues that those who manage the food production system need to consider in terms of the ways in which it is structured and operated.

Our aim here is to set out a series of theoretical perspectives and provocations on the nature of crisis and its relationships with a VUCA environment by using the example of the Bovine Spongiform Encephalopathy (BSE) crisis in the UK. The paper frames the discussion within the context of a systems-based approach, thereby allowing for a consideration of how the various elements of the system interact together and generate emergent conditions. This will become more important as the number of countries within the EU increases, along with the associated diversity in cultural approaches and practices that ensues. The paper considers issues around crisis management as means of providing a provocation for considering some of the challenges associated with the anticipation and prevention of damaging events by highlighting the interconnected nature of vulnerable pathways in complex socio-technical systems (Fischbacher-Smith 2014). The approach taken deals primarily with the incubation of failure potential within organisations, rather than the processes by which operational issues are addressed. The reason for this is that the operational response will depend on the dynamics of the specific threat environment in which the system is situated. In contrast, the processes around incubation are seen to be more generic and they highlight areas that those who manage systems need to consider in terms of building resilience to shock events. Our starting point is with a brief consideration of food-related crises, using the UK's BSE crisis as a means of highlighting the issues around crisis before applying issues arising from the case to crisis management theory. It then moves on to consider what a VUCA environment means the management of such crisis events as we continue to operate within an increasingly complex and highly interconnected policy environment.

2. The Precarious Nature of Food Security

> The food crisis has accelerated the debates over food security and has facilitated links between policies that were once anchored to narrow sectoral concerns. It has brought into focus the view that food security is not only a matter of national welfare, but is also a matter of global security (Brunori, Guarino 2013, p. 42).

Access to food is seen as an intrinsic human right and the provision of the infrastructure to support the delivery of food supplies is seen as part of the critical national infrastructure that the state has a responsibility to protect. The war in Ukraine has also illustrated the precarious nature of food security, both in terms of the shortage of certain products but also the increased cost of energy supplies that impact on farming away from the conflict zone. Prior to Russia's invasion, Ukraine had 41.3 million ha of agricultural land, which was almost 70% of the country's landmass, and the EU was the main export market for the country's sunflower oil and cereal products (EPRS 2024). A 2024 assessment suggested that 1.8 billion USD of damage had been done to storage facilities and some 1.87 billions USD of agricultural products had been lost in the occupied territories along with an estimated 95 million GBP in other farming-related materials (Neyter, Zorya, Muliar 2024). The war has also led to additional losses in terms of productivity, increased operating costs (mainly fuel) and depressed prices across the sector in the order of 69.8 billion USD (Neyter, Zorya, Muliar 2024).

In addition to the loss of a significant source of food from Ukraine, Europe (including the UK as a non-EU member) has also been effectively sidelined by the re-election of Donald Trump to the US presidency. Trump has appeared to mark a shift in the support provided to Ukraine by the Biden administration, with Trump arguing for access to minerals to pay for the aid provided. His often-unpredictable actions in terms of policy remain a key source of uncertainty in what is already an extremely volatile situation. Ukraine has also been excluded from the initial talks, which as the victim of Russian aggression highlights a fundamental shift in the policy of the USA and has added to the sense of crisis within Europe and which has all the hallmarks of a "polycrisis" (Tooze 2022), in which multiple, often initially unrelated, crisis events interact together to serve as a force multiplier for the impacts generated. The Russian invasion of Ukraine has served to generate crisis events in multiple areas beyond the war zone and especially around food security, the implications of which may have long-lasting effects.

One of the issues with the food system, as it is currently configured, is seen to be the challenges it faces in responding to such shock events (Clapp 2023). Contamination events such as the horsemeat crisis, illustrated the vulnerabilities

of food supply chains along with the lack of effective governance in monitoring and controlling the source of food and its delivery to consumers. The attempted blockade of, and attacks on, Black Sea ports by Russia added to the problems around exporting grain and other foodstuffs to some of the most vulnerable populations beyond the conflict zone. It highlighted the precarious nature of those supply chains, the ways in which they could be disrupted, and highlighted the broader set of vulnerabilities within the global food security system (Clapp 2023). Such a disruption can also lead to the exploitation of poorer food producers as rich countries can potentially acquire food from those communities that are themselves precarious in terms of their own food supplies. The relationships between these spaces of production and consumption (Hudson 2004) have led to uneven development and the generation of associated spaces of destruction (Fischbacher-Smith, Smith 2015) in which the costs are borne by some communities whilst others benefit. Other forms of exploitation have led to problems around the export of illegal and polluting activities by powerful interests that have led to environmental degradation in some of the more impoverished and vulnerable areas, again impacting on local food production (Hudson 2018).

Governance and information flows, particularly between producers and consumers, are important within the various networks around food security (Bush, Oosterveer 2007). The ability to identify and act upon early warnings and weak signals associated with problems in those networks is key to developing an early response to an emergent crisis (Mendonça, Cardoso, Caraça 2012; Ansoff 1975). However, in some cases, the available information is attenuated (Beer 1985) or distorted, and the burden of proof associated with the early indications of potential problems is often weak and subject to influence by powerful interests (Collingridge, Reeve 1986). This is especially challenging where the information may be deemed to be sensitive, ambiguous, or incomplete (Smith 1990b). The lack of a clear burden of proof in terms of cause-and-effect relationships often leads to a reluctance on the part of policy makers to intervene decisively and this lack of effective information within networks has the potential to lead to the incubation of the potential for crisis (Turner 1978).

Emergent global threats, such as pandemics, can also impact on the fragility of the food system. The COVID-19 pandemic had an effect on food production and distribution (Clapp, Moseley 2020; Toffolutti, Stuckler, McKee 2020), illustrating the notion of a polycrisis as a series of interconnected events (Tooze 2022) which served to force multiply issues around food production. COVID-19's impact on the food system affected all stages in the production-transportation-consumption process and served to increase the costs of food production by indirect means, largely through increases in the costs of other inputs into the food system. Increases in fuel

prices, exacerbated by the war in Ukraine, and the effects of the 2008 financial crisis added to the wider set of vulnerabilities with the system. What the interconnections between such events highlights is the impact of a global economic system which is both "tightly coupled" (where the speed of interaction is rapid) and "interactively complex" (where a failure in one part of the system can migrate to other elements due to its connectivity) (Perrow 1984). The issues of connectivity and the role of a "just-in-time" approach to food distribution point to a system that is fine-tuned under normal operating conditions but one that is also precarious should the environment become more challenging.

One food related crisis which highlights the dynamics of VUCA in terms of food security and the potential for crisis was the emergence in the UK of BSE which generated a crisis that went beyond the UK and affected other nations. Beyond the animal and human impacts associated with the disease, BSE was seen as presenting a challenge to the EU's regulation and governance processes, which had hitherto been seen as ad hoc and reactive (Vos 2000). It highlighted the vulnerabilities of certain control functions, and the problems associated with information flows around emergent conditions for which decision-makers had little, if any, prior experience. The crisis also highlighted the issue of how risk was assessed within the food supply chain (Little 2001) and, as the crisis reached its height, how the uncertainties inherent in the various calculative practices that were used to determine risk were then presented to the public (Jensen 2004; Jones 2001).

3. BSE as a VUCA Induced Crisis

The BSE crisis impacted upon several elements of UK society and subsequently other countries in the EU. It illustrated how a crisis could promulgate through interconnected systems and highlighted the challenges of determining the causal factors associated with an emergent hazard and the implications that it had for the effectiveness of control functions. Whilst it was initially an issue that faced the farming community, its transmission to humans in the form of variant Creutzfeldt Jakob Disease (vCJD) which had fatal consequences, generated a public health crisis. Much of the policy discussions within the BSE crisis centred on the calculation of risk, the determination of safety in terms of beef consumption, and the communication of that risk in a meaningful way to the public. The challenges around risk communication are common in crises, as there are often initial problems in determining the causal nature of the issues and the effectiveness of any interventions that are put in place. The erosion of trust is often one of the early casualties in a crisis and this adds to the challenges around communication.

BSE was particularly problematic as the causal processes around the emergence of the disease were essentially "trans-scientific" (Weinberg 1972) in that they went beyond the abilities of science to provide categoric proof in the early stages of the crisis. The result was speculation about the potential consequences associated with the disease, a problem that became more problematic when a link between BSE and vCJD was established. In order to reassure the public, government ministers engage in a number of attempts to show how safe beef was to eat, including the now infamous case of Minister John Gummer eating a burger during a TV interview after trying to get his young daughter to eat it first (Wylie 1997). Interventions of this nature can prove problematic in terms of eroding the fragile nature of public trust in government institutions and, in this case, the government was seen as having more concern for the financial impacts of BSE than its consequences for human health.

The determination of causality was evident in the early stages of the BSE crisis, as the nature of the infection in cattle proved to be a matter of considerable debate from the early identification of the disease in 1986, as did the pathways of disease transmission to humans (in the form of v-CJD) (Chesebro 1998; Dealler 1998; Lacey 1993). Whilst the source of the disease was ultimately found to be a prion, the early debates highlighted the problems around the determination of risk (as measurable uncertainty) through the calculative practices associated with risk analysis (The BSE Inquiry 2000a). David Spiegelhalter highlights the common nature of the risk communication challenge by observing that: "It's all very well trying to work out what has occurred, but there is often uncertainty about why something happened, and who or what was to blame" (Spiegelhalter 2024, p. 9). The search for culpability was an important issue in the BSE crisis as it has been in subsequent crises involving the state, perhaps most notably the Grenfell Tower Fire in the UK.

The scale of the BSE crisis was also a factor in the way that government struggled to contain it. The incidence of BSE is currently considered to occur at a rate of 1 in a million when assessed on a global basis (U.S. Department of Agriculture 2024), but during the BSE crisis, some 180,000 cattle were infected and subsequently died from BSE in the UK alone (Centers for Disease Control 2024; Smith, Bradley 2003) and this illustrated some of the challenges associated with making judgements about hazards when there was considerable uncertainty associated with the phenomena. It highlighted the limits of the knowledge base when dealing with emergent phenomena, where the known unknowns (and the unknown unknowns) would impact on the use of those calculative practices to measure the uncertainty (Fischbacher-Smith 2023).

One prominent example of the calculation of risk issue related to the ruminant feed ban (Alarcon et al. 2023) which was initially introduced on a voluntary basis with

some suggestions that a compulsory ban would struggle to gain ministerial approval (The BSE Inquiry 2000a; 2000b). The feeding of cattle (ruminants) with bone meal containing ruminants has been seen as critical in the development of the disease and it had initially been assumed to be safe, but material infected with BSE appears to have made its way into the feed and affected other cattle in the process (The BSE Inquiry 2000a). The practice of using animal protein in cattle feed can be seen as an example of the industrialised model of farming and the BSE crisis severely undermined consumer confidence in such practices along with the apparent lack of robust governance. The calculation of risk at the outset assumed that the protein used within feed was uncontaminated and therefore safe and this assumption was a key factor in the ultimate emergence of the problem. More recent work by Alan Cann has suggested that "the emergence of BSE in the United Kingdom appears to have been due to a chance event compounded by poor husbandry practices" (Cann 2012, p. 264). In other words, the assumptions about safety generated conditions in which there was little, if any, control and early warning processes within the system. The use of animal products within the feed used for cattle could be seen as a form of "error cost" (Collingridge 1992) within the decision making process as the hazards associated with it were not immediately apparent and there were no effective precautionary norms that prohibited its introduction. The costs of this decision would only become apparent later as the crisis unfolded. With the benefit of hindsight, there is an argument that a more precautionary approach could have been taken in the absence of information around the safety of the practice.

The government report into the handling of the BSE crisis (The BSE Inquiry 2000a; 2000b) argued that the origins of the prions may never be known but that, at some point, the use of infected cattle offal in the feed may have been the initial source of the transmission (see also Prusiner 1997). The uncertainty around the root cause of the infection and the initial speculation about whether it was safe for humans to continue to eat beef added to public concerns and served to exacerbate the crisis further (Ashraf 2000), thereby highlighting the challenges around the complexity in the situation and the problems in terms of risk communication. As a result, there was considerable criticism of the UK Government's handling of the crisis (Gerodimos 2004), along with concerns over the focus on profit over safety within the food industry (Little 2001). Beyond the health implications, the economic costs associated with the crisis were also considerable and resulted in a restructuring of the industry in an attempt to provide greater governance over food safety (Caskie, Davis, Moss 1998; Palmer 1996).

The BSE crisis marked a breakdown in public trust of government, and its use of specific forms of expertise, and this prompted a search by public groups

for other sources of information beyond that provided by the State (Jasanoff 1997). This was a process that was also evident during the COVID-19 pandemic, although in this case social media served to amplify the disinformation that was available to the public. In both the BSE and the COVID-19 crises, criticism was also made about the role played by institutional factors in the generation of the crisis. In the case of BSE the recognition of uncertainty and the nature of the complexity of the issues was seen differently by government agencies thereby hampering effective inter-agency collaboration (Jacob, Hellström 2000). These institutional factors included: the lack of information sharing and ineffective communication between government departments, as well as different assumptions that were made within agencies about the parameters of the problem space and the determination of risk (The BSE Inquiry 2000a; 2000b). The issue of governance and control, along with power asymmetries, would also prove to be factors in the subsequent horsemeat contamination crisis (Madichie, Yamoah 2017; Abbots, Coles 2013), the implication being that effective changes in the food supply chain had not been effective. The implications of the crisis were such that the EU modified its own food safety policies in recognition of the failures of existing processes around food safety (Vincent 2004; Vos 2000). However, such reforms inevitably bring with them challenges in terms of compliance and monitoring processes that are seen to be especially problematic a globalised environment where enforcement across the supply chain is often constrained.

BSE illustrated many of the challenges involved in dealing with complex, multi-level events. It highlighted problems around the determination of risk (as measurable uncertainty) and the ways in which radical uncertainty (Kay, King 2020) was communicated to the public. An associated issue related to the constraints generated around inter-agency communication and the sharing of information. Whilst BSE was initially a farming-related crisis, it quickly escalated into a health crisis once the implications of BSE as a causal agent in vCJD became apparent. Ultimately, BSE would also become an economic crisis as a lack of consumer confidence in the safety of UK beef, both domestically and internationally, became apparent. This would ultimately generate a further political dynamic to the crisis as the UK Government tried to reassure its electorate and its international partners about the safety and integrity of the UK's agricultural sector. The disease would also emerge in other countries, both within the EU and beyond as an illustration of the problems associated with industrial forms of production (Yoshikawa 2008; Heim, Mumford 2005). Against the background provided by the BSE example, we can now consider some of the wider issues around the development of crisis potential.

4. Crisis Management: Managing Uncertainty and Vulnerability Rather Than Risk

> The cultivation of imaginative inquiry into potential problems often avoids the occurrence of these problems in real life. Organizations with a culture of openness work effectively to verify and validate systems under development because they empower their people (Westrum 1993, p. 414).

The lack of imaginative inquiry highlighted by Ron Westrum could be seen to be a factor in the BSE crisis as government agencies struggled to make sense of the problem. At its core, a crisis represents an inability to manage the task demands that face an organisation where those requirements move the system from its designed-for state (along with its attendant contingency plans) to a new emergent-state where the nature of the threat exceeds the parameters based on previous assumptions. That was clearly the case in the example of the BSE crisis as the uncertainty and complexity within the task environment combined with the ambiguity in terms of causality to generate a complex set of conditions for the UK government to deal with (Gerodimos 2004).

BSE highlighted what Barry Turner (1978) has termed as a failure of foresight on the part of the UK government in terms of putting effective "precautionary norms" (Turner 1976a) in place to control the impacts of shock events. However, as Spiegelhalter (2024) observes "This requires admitting both the gaps in our understanding and the limits of our imagination" (p. 11). In many cases of organisational failure, it is a lack of the "requisite imagination" (Westrum 1993) needed to consider the gaps in our understanding and the underpinning inadequate knowledge which are critical factors in shaping failure. There is an argument which suggests that the failure of the EU and UK to effectively address the crisis in Ukraine also arises from such a failure of foresight following the annexation of Crimea by Russia in 2014.

Despite the advances in refining the various methods used to determine risk, there have been concerns that "there has been limited attention to the challenges in *communicating* uncertainty" (Spiegelhalter 2024, p. 11). The BSE crisis highlighted a major problem in the ability of government agencies and politicians to communicate uncertainty, often relying on claims of safety rather than recognising the limitations of existing understanding. There is also a challenge in the that communication is codified, especially around highly technical issues. For Joyce Fortune and Geoff Peters (1995) the process of effective communication requires that the encoding of the information must adopt the same rules for systems use that will be deployed by the receptors of the message. In areas of uncertainty, this

is often challenging due to the technical language that is used by experts – what Basil Bernstein (1964; 1962) termed an elaborated code – which is different from the language often used by the receptor of the message. In addition, noise within the communications channels used which can be generated by key influencers is also important, a problem that is exacerbated within a social media environment. The approaches taken to the communication of risk within the BSE crisis was criticised in the official report, as was the problems of information sharing between Government Departments (The BSE Inquiry 2000a). Part of the problem concerns the ambiguities around the definition of risk, the associated burden of proof, and the nature of the evidence on which calculative practices are based. Such limitations have led Jack Dowie (1999) to argue that the term risk has effectively become devoid of all meaning.

A crisis exposes the limitations of the perceived resilience within the system as, despite having the potential ability to recover, damage has already been caused by the crisis and often as a function of the failures of management to respond to the task demands that it faces (Turner 1994). Managers and policy makers can, therefore, become the authors of their own misfortune by generating vulnerabilities through their actions or inactions and which can result in the generation of the crises that they will subsequently have to manage. Whilst crises are arguably difficult to predict (and therefore, by extension, to prevent), there are some core characteristics of what has been termed a crisis-prone organisation that are well recognised, and which, if addressed, can improve the abilities to foresee and develop the capabilities needed to identify potential problems (Leveson et al. 2009; Roberts, Rousseau, La Porte 1994; Mitroff et al. 1989).

Cultural issues have proved to be important in shaping the generation of crises, affecting issues around communication, sensemaking, threat assessment, and the denial of potential weakness in controls (Challenger, Clegg 2011; Reason 2008; Vaughan 1996). They have also been seen to inhibit an organisation's abilities to learn – both from its own crises as well as those of other organisations (Elliott, Smith 2006). In some cases, learning can be superficial, giving rise to what Alvin Gouldner (1984; 1954) has termed a "mock bureaucracy" in which a superficial response to a crisis is adopted but the fundamental change that is required is not forthcoming. At a surface level of inquiry, a mock bureaucracy would suggest that changes have been made but in practice they have not been fully enforced.

Those who control the system need to be open to the potential for failure, to respond carefully to the lessons derived from previous crises, as well as identifying and reacting to weak signals of potential problems, even though there might not be a history of such problems occurring. Westrum's "cultivation of imaginative inquiry" within the food system will, for example, be shaped by the actions

of the various national countries (as well the range of international companies) involved at various stages of production and transport of food and their abilities to implement regulatory and control processes consistently. The diversity of these organisations and the challenges around communication may prevent the anticipation and early response to crisis events as well as the effectiveness of any communication and information sharing processes. Given the global nature of food production, the generation of this "requisite imagination" across the food value chain, as advocated by Westrum, is likely to prove challenging, thereby ensuring that the food system will inevitably have a degree of fragility within it.

There are two initial issues that need to be considered when considering the ability of a system to identify and respond to any shocks that it might face. The first of these relates to the inherent complexity that exists within the system itself and the way emergent conditions can be generated. Food production and distribution can be framed as a socio-technical system (STS), in which elements of the system interact with each other in a dynamic environment which has the potential to generate emergent conditions that go beyond the existing control parameters (Smith 2005). The connectivity between elements of a system and their role in generating emergent conditions has long been a central component of the crisis management process (Smith 1995) and connectivity is a key aspect of the globalised food system such that Jennifer Clapp (2023) has argued that there are structural weaknesses in the current industrial model of food production.

The second concerns the environmental conditions that prevail at the point at which the system is responding to such shocks. Again, the complexity inherent within the environment can generate additional emergent conditions and increase the task complexity in which decision-makers must respond to any shock events. Given the nature of political systems then there is an argument which suggests that the development of sufficient requisite imagination to deal with the complexity in the system is challenging if not impossible.

Much of the earlier discussion around BSE has highlighted issues around the crisis of management and the core elements that led to the emergence and escalation of the crisis. There are several frameworks which set out the multistage nature of a crisis (Pearson, Clair 1998; Smith 1995; 1990a; Shrivastava et al. 1988) but for our purposes, we will illustrate the challenges facing organisations by highlighting three interconnected stages of a crisis: the crisis of management, the operational crisis, and the crisis of legitimation (Smith 1995; 1990a). Figure 1 sets out the stages of this framework and conceptualises it as a circular process in which the failure to learn and adapt are both critical components in the generation of failure. Other key elements in the framework relate to the processes of transformation and transition. Transformations are seen to occur when changes are made to the system but

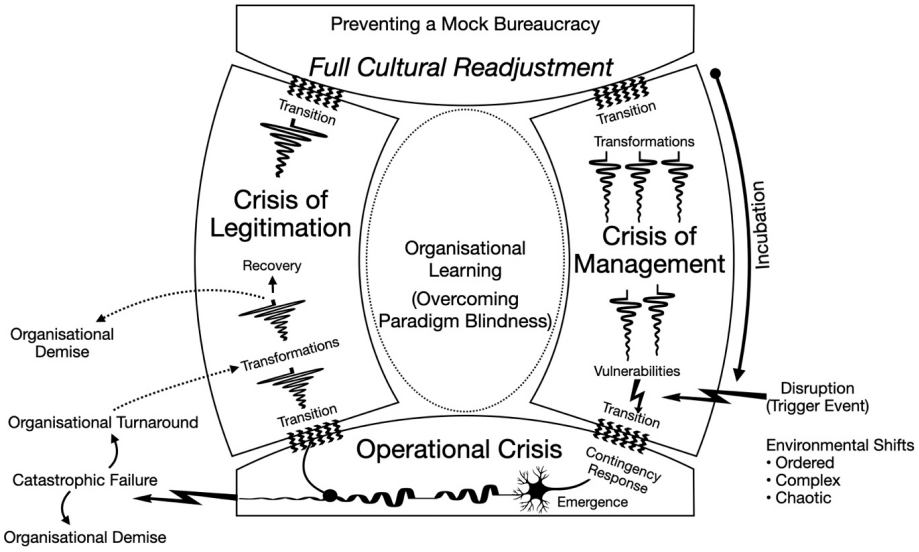

Figure 1. Crisis management framework

Rysunek 1. Ramy zarządzania kryzysowego

Source: own study based on Smith (2005; 1995; 1990a).
Źródło: opracowanie własne na podstawie Smith (2005; 1995; 1990a).

in a reductionist way that fails to take account of the performance of the system as a whole and does not recognise the impacts of those transformations on the generation of fractures in controls. In some cases, these transformations can be seen as local adaptations or violations of the system processes (Reason 1997) and which reflect the "source types" of awareness, commitment, and competence (Reason 1990c) that can generate cultural context in which failure occurs. Transitions, on the other hand, occur either through the triggering of a crisis in which the system moves from one state to another, or through the effective recovery of the system and a transition to a new way of operating. The latter is achieved via what Turner (1976a) terms full cultural readjustment which serves to generate a new set of precautionary norms for the control of the system. For Turner (1976b) the assumptions that are held about the potential threat environment are important in shaping controls but they will also be key in the incubation of failure. It is in this crisis of management phase that the organisation embeds the vulnerabilities within its control and analytical functions through a lack of imagination around the potential for failure and a reluctance to adopt a precautionary approach when dealing with uncertainty (Fischbacher-Smith, Calman 2010).

The BSE outbreak highlights many of the key issues that form the basis of theoretical perspectives on crisis management. Many of the vulnerabilities within the BSE crisis can be seen to have been generated as a function of the core beliefs, values, and assumptions held by those who design and manage the system, as well as the precautionary norms, processes and practices that are in place to control its performance (Turner 1976a). The result is often the creation of a particular paradigmatic view of the potential vulnerabilities within the system amongst those who manage it and such a mindset often proves difficult to change (Fischbacher-Smith 2012). By failing to adapt to those task demands and develop the skills and competencies needed to deal with a changing operational environment, then an organisation may begin to embed the potential for failure within its processes as the environment becomes more complex or even chaotic (Fischbacher-Smith 2015).

One of the strengths of Turner's work is that he advocates "shaking the kaleidoscope" rather than using a single paradigmatic lens, thereby recognising a more subjectivist approach to complex, multi-layered problems rather than a narrow one (Weick 1998). This is reflected in a systems-based approach in which different perspectives are brought to bear on a problem space and where the "researcher" or practitioner recognises their own preferred way of framing the problem space (Ison 2017). We all bring out knowledge, and our ignorance, to the analysis of the problems that we face, and both can at times be problematic. Knowledge can be tacit or explicit, in can be known and understood or unknown, and it can change as the theoretical insights into problems evolve and shift the paradigmatic lends through which we see the world. Both knowledge and ignorance, and the interplay between them, are important elements in the generation of crisis potential. Turner (1976a) also sets out a number of key elements in this regard.

Firstly, he argues that "discrepant events" are either unknown or not fully understood. One of the reasons for this is that information about the performance of a system is not uniformly distributed within an organisation (Turner 1976a). In some cases, the information is known but not communicated to those who manage the system. In part, this is a function of the formal system of reporting within organisations where the structure of the reporting process may generate a reluctance of staff at the sharp end of operations to report concerns (Fischbacher-Smith, Fischbacher-Smith 2014; Brookfield, Smith 2007). This categorisation of knowledge can be further developed by reference to Donald Rumsfeld's (2011; 2002) notion of the knowns (including the unknown knowns) and the unknowns (the known unknowns and the unknown unknowns). The unknown knowns represent knowledge that is present in certain parts of the system, but which is not communicated to those who make decisions. This tacit knowledge has not been made explicit and represents Turner's category of not being fully understood.

However, even phenomena that are known are potentially prone to interpretation issues when looked at through different analytical lenses.

Secondly, because of the ways in which operational staff adapt to specific demands required to get the job done, it may be that these local adaptations become part of the accepted operational practices within the organisation but they may not be communicated to senior management, or they may be implicitly tolerated (Turner 1976a). There are likely to be differences in the accepted precautionary norms used by operational staff to those held by more senior members and, if left uncorrected, these violations of the formal rules are embedded into local practices. Such "necessary violations" (Reason 1990a; 1990b) are examples of the latent conditions that serve to generation gaps in organisational controls (Reason 1997).

Information, knowledge, and ignorance are all critical to the management process in any organisation, and they may combine to generate emergent task demands around a particular problem space (Chernov, Sornette 2016). In a complex, multi-layered and multi-locational system, the operative functions will invariably generate challenges around information gathering and transfer (Fortune, Peters 1995). Of particular concern here would be the attenuation of information passed upwards from the operating core of the system to the strategic level. Beer (1985; 1984) argued that in order to address this challenge, organisations need to ensure that they recognise the complexities and ambiguities in information flows transmitted up the hierarchy of control functions. Inevitably, this is challenging due to the problems in encoding and decoding information, but it is an issue that is made more problematic when cultural differences add to the attenuation process. Here the regulative aspect of a system might generate additional problems in terms of providing for an effective audit of the information deficiencies caused by attenuation. This will have implications for the identification of near-miss and early warning information.

An additional problem is generated by emergent conditions which can add to the prevailing lack of knowledge and create problems that have not been foreseen. Emergence can be seen to require more effective information sharing and intelligence gathering processes which allow early warning processes to identify resonance within the system which can then be acted upon. With the physical expansion of the EU and the growth in its associated bureaucracy, these early warning processes are important but may also be hampered by the scale and cultural diversity of the expanded bloc.

We can add to this the complexities that exist within the environment. One might argue that the period 2004–2024 has been typified by a chaotic environment in which the financial crisis, COVID-19, and Brexit may have served as force multipliers for the erosion of controls in many parts of the EU. In terms of the nature

of the environment, Stuart Kauffman (1993) has argued that there are three main environmental states – ordered, complex, and chaotic – and that an entity's abilities to operate successfully within those changing environments is a function of its fitness. In an ordered state, the environment is largely stable and predictable. Any perturbations impacting on the system are likely to be within the contingency parameters that are in place in what can be seen as the designed-for systems state. Whilst the development of emergent conditions might still generate new forms of threat, the system is likely to have effective information and intelligence gathering processes in place. In addition, knowledge around the performance of the system is likely to be well-established and levels of ignorance will be contained within known parameters. Problems occur as the environment shifts into a more complex or even a chaotic state as this can result in the threats that are generated exceeding the contingency arrangements that are in place within the system (Smith 2005). It can also shift the balance between knowledge and ignorance, thereby making the response to emergency conditions more challenging. It is here that the potential for crisis is at its most potent and it serves to help transition the organisation into the operational crisis stage shown in Figure 1.

The operational crisis is the most develop aspect of the framework and it relates principally to the development of contingency plans, the utilisation of crisis management teams, dealing with the media and external stakeholders (Smith 2000). A key aspect of the development of such contingency arrangements will be dependent on the organisation developing the imagination needed to provide and learn from effective scenarios to test organisational capabilities (Smith 2004). For many organisations, there is often an issue with the transition to the operational crisis in that the leadership approaches which led the organisation to the point of failure may not be suitable in terms of managing the crisis (Fischbacher-Smith 2016). Over time, there is the potential for an organisation to drift away from its designed-for state to a new emergent (equilibrium) state in which the controls that are in place are not capable of dealing with the emergence which occurs as the environment moves from an ordered (known) state to a complex, or even chaotic state (Hodge, Coronado 2007; Smith 2005). Turner highlights the transformation process that occurs here in which:

> […] the first discrepant event occurs unnoticed and is brought to a conclusion by a *precipitating incident* which produces a transformation, revealing the latent structure of the events of the incubation period. A situation which had been presumed to have one set of properties is now revealed as having different and additional properties which must be interpreted differently (Turner 1976a, p. 761).

In the BSE case, the operational crisis was shaped by the surprise (and sense of denial) associated with the emergence and scale of BSE and the lack of a clear understanding of what the causal factors might be (Lacey 1994; 1993). It is the uncertainty associated with an emerging crisis and its causal nature, that generates a challenge for organisations and combines with any lack of effective crisis training to generate a sense of a chaotic state (Smith 2005). This uncertainty was exacerbated in the BSE crisis by a lack of effective communication between elements of government and the poor communication to the public, especially around the hazards of consuming beef and the potential onset of vCJD (The BSE Inquiry 2000a; 2000b). Organisations that fail to develop communication strategies to deal with a range of crises before they occur are destined to struggle in regaining control of the narrative, especially if the risks become amplified through media coverage (Sato, Webster 2022). Radical uncertainty (Kay, King 2020) within a crisis situation can impact on the ability to control the immediate task demands of the crisis. Some organisations that survive the operational crisis can fail later as they fail to security legitimacy with their various stakeholders and there are several examples of organisations that have deal with the acute crisis only to succumb in the aftermath (Sipika, Smith 1993).

The crisis of legitimation phase is important in that it provides the opportunity for the organisation to reassure its stakeholders and regulators that it has learned lessons from the crisis, although there are several barriers to learning that have to be overcome, many of which relate to changes in the culture of the organisation and, in some cases, its leadership (Fischbacher-Smith, Fischbacher-Smith 2009). Of particular importance in this final phase is the need to ensure that the response to the crisis does not become what Gouldner (1984; 1954) has termed a mock bureaucracy in which only a superficial approach is taken to making changes in the culture and processes in the organisation. In a "organisation" as culturally complex as the EU, such a process will invariably be challenging. A failure to learn lessons from a crisis and make the necessary adjustments to precautionary norms, may simply ensure that the organisation continues to incubate the potential for failure at a future date. As a means of drawing many of these arguments together, the final phase of the paper will consider the challenges generated by a VUCA environment and the implications that it has for the incubation of crises.

5. VUCA, Risk, and the Nature of Crises

> VUCA situations are constantly shifting and their volatile nature means that large changes can change very quickly […] volatile changes can be thought of as avalanches of information and change that dramatically shift the landscape and sweep away unwitting leaders and organisations caught in their path (Bartscht 2015, p. 254–255).

Robert Bird (2018) argues that VUCA has significant implications for the ways in which we think about the nature of risk within the environment, and argues that "risk management currently operates at a constrained efficiency" (p. 370). In part, this constrained efficiency is seen by Bird to arise from a focus on the probability and consequence components of risk (as measurable uncertainty) but one which fails to take account of the speed at which risks are realised and the emergent nature of hazards which impact on the utility of the calculative practices used to determine risk. VUCA is seen by Bird as consisting of four dimensions of risk which address the issues of: speed of onset (volatility), the opaque nature of certain risk and vulnerability pathways (ambiguity), the role of emergence within a complex environment (complexity) and which, collectively, impact on the determination of uncertainty, and by extension, on ignorance. Against this VUCA background, Jan Bartscht (2015) argues that organisations focus more on the exploitation (management) functions rather than the exploration (leadership) elements and that this:

> […] overemphasis on exploitation activity results in organisations that are highly optimised to achieve their goals in the present yet are very vulnerable and unprepared for future changes. Thus, when unexpected future events "arrive" in the present, these efficient yet fragile organisations are thrown into crisis (Bartscht 2015, p. 253–254).

Bartscht argues that the information processing elements of the organisation are key to the successful negotiation of a VUCA environment, and this highlights the importance of several factors in the uncertainty and ambiguity components of VUCA.

Haridimos Tsoukas (1999) sets out four elements that can be seen to be important within the development of a crisis and which reflect the dynamics of a VUCA environment. The first is what he terms "action at a distance" where the temporal and spatial dynamics of decision making can lead to a separation of decisions and outcomes. Within a volatile environmental context, the notion of risk becomes an abstraction because of the inability to calculate its probabilities and consequences

with predictive validity is compromised due to emergence, and so it is uncertainty that need to be managed rather than risk per se (Fischbacher-Smith 2023). BSE highlights this temporal separation in the process by which the crisis was incubated over time through what could be seen as inadequate governance and control practices within the farming sector. The second element identified by Tsoukas concerns the economic aspects associated with a crisis in which the hazards generated become part of the production-consumption process. We can add to this the notion of control within a complex system in which the uncertainty and complexity associated with cause-and-effect relationships in socio-technical systems has the potential to generate emergent conditions that exceed the control parameters in place. Again, the BSE crisis highlighted this through the initial contamination of cattle feed with infected prions and the subsequent transmission to humans. This leads into the third element identified by Tsoukas which concerns the networks through which discussions around uncertainty are mediated. Within the BSE crisis, this was through both expert networks and government communications but also through media outlets. With the emergence of social media, such discussions become more problematic in terms of management due to the speed at which causal theories can promulgate and the unfettered nature of conspiracy theories through social media platforms that have weak or non-existent fact-checking processes. Finally, Tsoukas (1999) argues that risks are assessed through various networks of actors, and this generates issues around a burden of proof where the determination of risk (as measurable uncertainty) is open to debate due to the emergent conditions within a complex socio-technical system. Again, the BSE crisis highlighted this issue in terms of estimating the potential human fatalities associated with vCJD.

The BSE crisis highlighted the limited ability of risk analysis as a calculative practice to quantify, and thereby manage, risk. The ambiguities associated with the term risk (Dowie 1999) also served to increase the dominance of uncertainty within the debates, and yet politicians and other acts sought to establish the nature of those risks despite those challenges. Figure 2 attempts to frame this relationship between uncertainty and risk and positions it between the decisions that are taken around a hazard (both operational and strategic) and relates it back to the assumptions, core beliefs, and values of those making the decision. The issues of production, consumption and control are themselves shaped by the decisions taken and often assume a determination of risk that is misplaced due to the uncertainty and complexity that is inherent within the system. The extent to which the elements of the production-consumption system are connected will determine both the speed and escalation of any potential failures around control (Perrow 1984). The management of information will be critical within this process and, along with expertise, will be mediated through the various structures

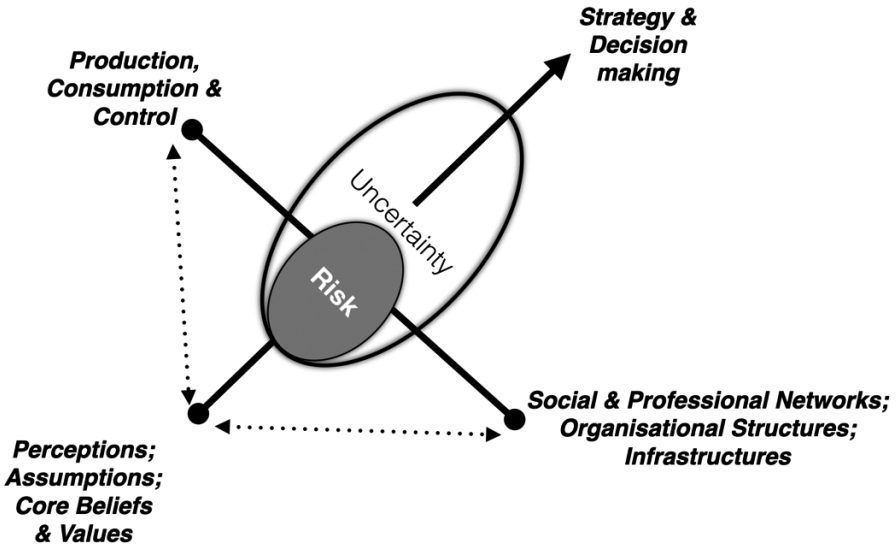

Figure 2. Framing the underpinning elements of crisis

Rysunek 2. Układ podstawowych elementów kryzysu

Source: own study based on Hodge, Coronado (2007) and Tsoukas (1999).
Źródło: opracowanie własne na podstawie Hodge, Coronado (2007) i Tsoukas (1999).

and networks that are place. Determining the parameters of control systems will, in part, shape the ways in which the precautionary norms are put in place which will also determine the nature of the information that is collected and communicated. Expertise, and its limitations under conditions of complexity, will be important in shaping those controls and the complexity generated by emergence will add to the potential ambiguities around cause-and-effect relationships. The BSE crisis serves to highlight the important interactions between the elements shown in figure 2 and these remain current challenges for policy makers and managers to address within a VUCA environment.

The elements of VUCA can be seen to be both causal and consequential in terms of a crisis. Uncertainty and ambiguity will impact on the abilities of those who control the system to make effective decisions and, perhaps of equal importance, to recognise the potential cost of errors associated with those decisions. Our abilities to deal with the complexity within the system, and the associated generation of emergent conditions, will be shaped by the perceptions and assumptions that we make about the ways in which the systems functions. However, we often assume that the system is working as designed and that its control functions are operating

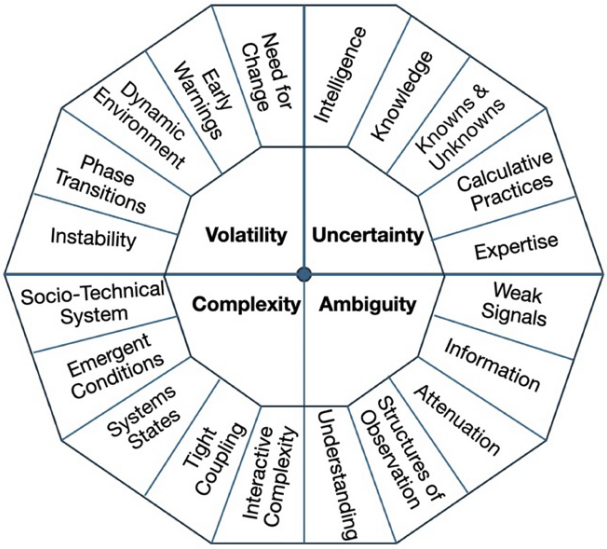

Figure 3. The VUCA wheel and elements of crisis management

Rysunek 3. Koło VUCA i elementy zarządzania kryzysowego

Source: own study based on Taskan, Junça-Silva, Caetano (2022, p. 213).
Źródło: opracowanie własne na podstawie Taskan, Junça-Silva, Caetano (2022, s. 213).

effectively and those controls are often operating in a degraded or locally-adapted mode which results in the generation of gaps that can lead to failure (Reason 1997). The interconnected nature of systems and the speed by which they operate will allow those failures to promulgate quickly.

Figure 3, which is adapted from Burcu Taskan, Ana Junça-Silva and António Caetano (2022), highlights some of the issues from research in the field of crisis management and categorises them under the VUCA acronym. From an information processing perspective, both the uncertainty and ambiguity elements have components that are deemed to be important in addressing issues of risk as a calculative practice. If we start with the information element, then the ambiguities and contradictions within available information will shape the decision process. Much will depend on the information that is collected – a process around the structures of observation in which managers collect the information that is deemed to be important and develop the frameworks used to collect it (Seidl 2007). David Seidl (2007) argues that the knowledge that we have shapes the way in which we select information and that the intelligence function represents the capability to deal with the things that we don't know.

There are several issues that can impact on the effectiveness of the intelligence gathering process. The first, relates to the definition of the problem space itself (Ison 2017). Our boundaries for the consideration of important information are key here and the more we widen that consideration the more we must embrace the uncertainty that it generates. Secondly, the structures used to facilitate the intelligence gathering processes will also shape its effectiveness and there is a need to assure viability within the system at its various levels of operation (Beer 1985; 1984). Thirdly, institutional issues are important in multi-level systems as cultural barriers may impact on information sharing (Epstein 2006), especially around weak signal detection (Ansoff 1975). Much of the information available within a system is simplified (or attenuated) prior to transmission up through the organisational hierarchy and, in order for a system to be viable, it needs to be able to put the ambiguities and complexities associated with that information back into the decision making process (Boisot 1995; Beer 1985). An additional challenge concerns the ways in which the information present in the environment is filtered or ignored because of the knowledge and understanding of those analysts within the system. Again the regulative function is important here in providing a challenge to the cultural norms of assessment, especially in terms of calculative practices that might prove problematic for the identification of low probability events (Fischbacher-Smith 2023). This reflects what James Reason (1990c) terms the source types of actors within the system that are important in shaping the failure process namely: awareness, competence, and commitment.

Ambiguity within the environment is also tied into volatility as the dynamic nature of the situational context facing the organisation will be important in both increasing the need for change (which will impact on the dynamic capabilities that the organisation has) and will be dependent on information and understanding to successfully adapt to the environmental threats. Of particular importance here are the phase transitions which occur as the environment moves from one systems state to another and the interactions between the various elements of the VUCA acronym which can serve as a force multiplier for the generation of the operational crisis. The VUCA wheel highlights the various issues that can face organisations in terms of the incubation of crisis potential. They also have the potential to interact to generate additional emergent conditions that will reflect the situational context in which the system is operating. As such, VUCA components should not be seen as a rigid way of categorising the underlying elements but rather as a starting point for consideration their contribution to vulnerabilities within the system.

6. Conclusions

> […] there is nothing like the widespread perception of systematic failure to shock us out of our collective complacency. Ignorance is not always bliss (Epstein 2006, p. 235).

Crisis management theory highlights the challenges that organisations face in the task environment generated by the VUCA elements. The complex nature of socio-technical systems such as those found in food production and their dispersed nature will generate challenges in terms of information and intelligence gathering and the provision of effective early warning and control functions. These issues are compounded when considered through the lens of interconnected supply chains where different national and organisational cultures will shape the ways in which the VUCA elements are incorporated into decision-making. Whilst the EU has sophisticated control mechanisms in place it is not immune from the potential for crisis generation and the different national cultures can prove problematic in this regard, especially where full agreement between member states is required.

The management of information flows within networks is particularly challenging as is the need for a sophisticated intelligence function that processes that information and, perhaps more importantly, recognises where the gaps in that information are. This has implications for the way in which uncertainty is measured, and risk (as both probability and consequence) is calculated. Information flows are also important in shaping the communication of uncertainty and the responses made to potential early warnings of issues. A sense of denial is often seen as one of the main barriers to addressing the incubation of crisis potential and this requires a change in the way evidence and a burden of proof are addressed within decision-making. Recent history has suggested that ideology rather than a burden of proof has become a dominant factor in shaping the ways that problems are defined, and this has the potential to generate vulnerabilities in the very fabric of the problem space.

This paper has sought to highlight a range of issues that are relevant to food security as well as other related functions that are essential to society. It has, inevitably, only scratched the surface of these issues and done so in the hope that it will provoke reflection and debate about the points made. The significance of the VUCA elements is that they ensure that the systems in which we operate are dynamic and in a constant state of flux. This inevitably requires that we are constantly reflecting on the underlying drivers by which crises are generated. To echo Tsoukas (2017), we need to recognise the complexity in the problems that we face and should not, therefore, seek simple solutions to complex problems. VUCA

elements point to the nature of that challenge, and we need to recognise the limits of our understanding within the management of that uncertainty and complexity which is inherent with our operating environment and the ambiguities and volatility and arises as a consequence. This has implications for academic research as our findings and insights into these complex problems need to reflect the constraints we operate under in terms of a burden of proof – our insights into these issues are inevitably fleeting as the dynamic nature of the problem space evolves.

The expansion of the EU in 2004 and its subsequent evolution illustrates the dnamic nature of the problem space. Expansion always had the potential to increase the generation of emergent conditions within the bloc as a function of increasing the number of states involved, the political make-up of the various elected members to the Parliament, and the interactions that took place between them and between the EU and the various constituent national parliaments. It also brought new perspectives to bear on the complex problems that we face as the different cultural backgrounds of member states would also be a factor in shaping the ways in which problems were identified and addressed. Emergent conditions arising out of the interactions between elements of the enlarged EU system added to the requirements to address the uncertainty that it generated. This paper has sought to highlight some of the elements associated with the incubation of crisis, both as a reflexive process but also as a provocation to consider how these processes might impact on the future expansion plans of the EU and the ways that information and expertise are addressed as the environment and its associated task demands evolve. One thing is certain, crises are an inevitable part of organisational life and if we fail to search out the causal factors that generate the potential for failure then the only certainty is that we will experience that failure. Recognising the limits of our own insights into the failure process and embracing the uncertainty that sits at the core of VUCA environment is the first step in addressing that challenge.

Acknowledgements

The author would like to thank Alan Irwin and Katarzyna Zawalińska, along with the referees, for comments on an earlier draft of this paper. Of course, all errors of commission and omission remain those of the author.

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Ekspansja w świat VUCA. Refleksja nad 20 latami zarządzania kryzysowego

Streszczenie: W ramach refleksji nad dwudziestoleciem rozszerzenia Unii Europejskiej niniejszy artykuł przedstawia elementy teorii zarządzania kryzysowego będące sposobem analizy różnych kwestii, które UE i jej państwa członkowskie powinny uwzględnić w kolejnej fazie rozwoju. W artykule odwołano się do kryzysu związanego z gąbczastą encefalopatią bydła (BSE) w Wielkiej Brytanii, co potraktowano jako przykład ilustrujący kruchość systemu żywnościowego, koncentrując się na tym, w jaki sposób kryzysy mogą zostać wbudowane w standardowe działania organizacji. W konkluzji autor osadził procesy generowania kryzysów w kontekście środowiska VUCA – zmienności (*volatility*), niepewności (*uncertainty*), złożoności (*complexity*) i niejednoznaczności (*ambiguity*) – uznając je za punkt wyjścia do rozważań nad wyzwaniami stojącymi przed sektorem żywnościowym oraz konsekwencjami dalszego rozszerzania UE w warunkach VUCA.

Słowa kluczowe: zarządzanie kryzysowe, VUCA, bezpieczeństwo żywnościowe.