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Using ambidexterity in the ecological security management of organisations

Introduction

The discussion on the management of organisations in the context of their security concerns problems considered simultaneously from a strategic and operational perspective (*ambidexterity*), or the appropriate behaviour of different types of organisations in the face of varying environmental turbulence. In particular, the issue of residual behaviour for organisations comprising critical infrastructure is relevant.

Questions concerning the development and adaptation of management mechanisms to the specific security threat situation of an organisation are relevant: according to a situational approach or for the implementation of *ambidexterity* behaviour. In the literature, mechanisms for crisis management are considered on the basis of the different stages (phases) of this management. Crisis management takes a process form with permanent functioning procedures, resources and mechanisms. It is noted that the effectiveness of crisis management mechanisms is influenced by good practices.¹

The possibility of unexpected, significant (catastrophic) risks should be reflected in the organisation's *ambidexterity* behaviour (mechanisms) in the form of readiness for resilient (referred to as resistance or robustness, combining resistance with

¹ A. Nowicka, "Zarządzanie kryzysowe w ujęciu porównawczym na przykładzie Włoch i Polski", *Obronność – Zeszyty Naukowe Wydziału Zarządzania i Dowodzenia Akademii Sztuki Wojennej*, no. 4(28), 2018, pp. 193–224.

adaptability and flexibility), and resilient (stability) behaviour. The latter involve, inter alia, the use of entrepreneurship and innovation in both a strategic and current (operational) perspective, using appropriate management mechanisms.² This type of behaviour is described under the concept of *resilience*. Emphasising the importance of organisational resilience stems from the notion that it is currently a security paradigm, which can be applied to crisis management.³

In the case of extreme weather events, mechanisms of resilience based on communication, coordination (mainly of resources and self-organisation), authority of the authorities taking into account the legitimacy of decisions made and learning, including using knowledge gained through experience can be used.⁴ Three mechanisms of residual behaviour have been identified in relation to crisis situations including natural disasters: 1. situation awareness (acting in a network means knowing one's position, changes in the environment and the ability to identify crises with their consequences), 2. explaining risks, 3. risk reduction with improved organisational effectiveness using planning.⁵

Hypothesis: *Ambidexterity*, using management mechanisms, can provide support to the functioning of an organisation in both a strategic and operational perspective in the face of unexpected extreme turbulence in the environment related to the ecological factor.

This means, on the one hand, preparing a strategy of resistance and stability and, on the other hand, being ready for ad hoc behaviour.

Ambidexterity and security

The ability to overcome crisis situations can be linked to an organisation's strategic approach related to the concept of *ambidexterity*. The author of this article

² A. Chodyński, *Dynamika przedsiębiorczości, i zarządzania innowacjami w firmach. Odpowiedzialność – prospołeczność – ekologia – bezpieczeństwo*, Kraków: Oficyna Wydawnicza KAAFM, 2021, pp. 165–203.

³ M. Stęпка, "Rezyliencja jako paradygmat bezpieczeństwa w czasach przewlekłych kryzysów", *Przegląd Politologiczny*, no. 2, 2021, pp. 105–117.

⁴ A. Leszczyńska, "Mechanisms of organisational resilience to weather extremes: an attempt of identification", *5th International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2018, 26 August – 01 September, 2018*, https://www.researchgate.net/publication/338038128_MECHANISMS_OF_ORGANISATIONAL_RESILIENCE_TO_WEATHER_EXTREMES_-AN_ATTEMPT_OF_IDENTIFICATION [accessed: 2 January 2022].

⁵ S.Y. Teoh, H.S. Zadeh, *Strategic Resilience Management Model: Complex Enterprise Systems Upgrade Implementation. Proceedings of the 17th Pacific Asia Conference on Information Systems, Illinois, 18–22 July 2013*, [as cited in:] A. Karman, *Odporność organizacji na ekstrema pogodowe*, Lublin: Wydawnictwo UMCS, 2019, p. 128. Karman presents a list of resilience mechanisms in the different phases of extremes: anticipation, response, recovery (p. 154).

proposes that this approach, in a risk situation, considers the proactive attitude of an organisation related to the implementation of a strategy using the capacity for both current and future-oriented actions. The work in this area can be used in security considerations to ensure the ongoing continuity of the organisation under predictable operating conditions and to prepare the organisation for unexpected actions. Ambidexterity refers to the balance of an organisation's exploitative and exploratory behaviour. Exploration is associated with innovation activities, change, while exploitation is associated with improvement and operational competence, among others. The importance of being able to perform these behaviours simultaneously is emphasised.⁶

Ambidexterity is also considered in terms of organisational resilience, referring to the different states of the company in relation to environmental influences. The ability of an organisation to simultaneously exploit and explore is referred to the state of adaptivity.⁷

Ambidexterity can concern structural solutions, the context of activities and leadership. Separate structures relating to exploratory and exploitative activities, linked at the top management level, are the focus of structural *ambidexterity*. Contextual *ambidexterity* refers to the shaping of processes and systems, taking into account the behavioural choices of employees who devote their time to activities of an exploratory or exploitative nature. Mainstream research on *ambidexterity* considers, among other things, the simultaneous implementation of single and dual learning loops, knowledge management, radical and incremental innovation, transformational leadership or organisational culture. Attention is drawn to the importance of duality concerning the organisation itself and in the context of networks or alliances.⁸ With regard to knowledge, *ambidexterity* can refer to its exchange and protection.⁹ *Ambidexterity* can be realised in organisations of a different nature from a security point of view, i.e. both operating in and interacting with security systems (including commercial organisations). Up to now, their involvement in security matters may have been low, but this may have increased as a result of the fact that the security of the organisation has already been compromised or is likely to be in the future. The importance of *ambidexterity* may vary and may depend on whether commercial organisations are operating

⁶ A. Zakrzewska-Bielawska, "Paradoks eksploracji i eksploatacji – ambidexterity w zarządzaniu strategicznym", *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, no. 420: *Strategie. Procesy i praktyki*, 2016, pp. 435–449.

⁷ E.A. Mamouni Limnios, T. Mazzarol, A. Ghadouani, S.G.M. Schilizzi, "The resilience architecture framework: four organizational archetypes", *European Management Journal*, vol. 32, no. 1, 2014, pp. 104–116.

⁸ A. Zakrzewska-Bielawska, "Ambidexterity – światowe trendy eksploracji w naukach o zarządzaniu", *Przegląd Organizacji*, no. 1, 2016, pp. 16–23.

⁹ M. Stelmaszczyk, A. Jarubas, "Zastosowanie podejścia ambidexterity w odniesieniu do wymiany wiedzy i ochrony wiedzy w kontekście zdolności absorpcyjnej", *e-mentor*, no. 2(79), 2019, pp. 68–78.

in high-risk sectors, e.g. the chemical industry (in terms of environmental/ecological threats) or energy sector companies operating within critical infrastructure, for which business continuity is essential.¹⁰ Business continuity assurance can refer to the improvement of operational capabilities (in the operational variant) or exploratory, related to the search for new solutions, including for unexpected situations. In the literature, organisational solutions are sought to ensure the security of an organisation's operations through the creation and location of security cells in organisational structures within corporations and companies, among others. The tasks of security departments and the tasks of the security *director* (including his/her role as a leader, but also as an innovator) and the tasks of the security *manager*¹¹ are considered. The author of this paper points out that it is important that security learning takes place under conditions of controlled business continuity or is the result of the need to react in emergency situations, e.g. the occurrence of unexpected threats and the need for resilient or resilient behaviour.¹² The simultaneous ability to respond in both situations is a manifestation of ambidextrousness. It will therefore be important to create solutions in terms of structures, processes or procedures that are useful in a situation of normal operation of the entity and in an emergency or catastrophic situation where the level of threats has exceeded an acceptable level. This is particularly important for highly reliable organisations (e.g. nuclear power plants). These types of organisations should remain resilient, which does not preclude, in the longer term, there will be changes to better adapt to the risks involved. An important question remains whether and in which areas of the organisation's operation to maintain resources at a slimmed-down level, and in which areas, e.g. related to environmental security and potential crisis situations to maintain redundant resources (strategic approach related to resource redundancy).

Ambidexterity behaviour is conditioned on the one hand by the perspective of anticipatory behaviour and on the other hand by the realities of the implementation of current operational activities. Unexpected events, including those of a catastrophic nature, occur in the reality of the company's operating conditions, in a specific place and time, with a certain degree and nature of links between different organisations. This place, going beyond a narrow understanding of this concept in purely geographical

¹⁰ Business continuity management with regard to critical infrastructure is reflected in the unified text of the Crisis Management Act (Journal of Laws of the Republic of Poland, 2019, item 1398). For a broader commentary, see A. Jagnieža, *Promocja zarządzania ciągłością działania*, <https://fibis.pl/o-potrzebie-promocji-zarzadzania-ciagloscia-dzialania> [accessed: 10 November 2020].

¹¹ Ch. Sennewald, C. Baillie, *Effective security management*, 7th ed., Oxford: Elsevier, Butterworth-Heinemann, 2020, pp. 3–45, <https://www.elsevier.com/books/effective-security-management/sennewald/978-0-12-814794-8> [accessed: 3 January 2021].

¹² A. Chodyński, *Przedsiębiorstwo sprężyste – odpowiedzialność w skrajnie turbulentnym otoczeniu*, [in:] *Obszary zrównoważonego zarządzania organizacjami w zmiennym otoczeniu*, ed. D. Fatuła, Kraków: Oficyna Wydawnicza KAAFM, 2016, pp. 37–51.

terms, implies the need to operate in an environment with a specific social capital that affects the company's ability to survive.

In considering the *ambidexterity* of relevant security, including at the local level, an important role can be played by analysing the paradoxes of inter-organisational cooperation in a public security management system involving local government, intervention and rescue units, local communities, the media, NGOs and research and development units.¹³ Dealing with paradoxes is based, among other things, on activities such as joint exercises, exchange of experience, training, cooperation with local authorities, agreements or the creation of joint procedures. The importance of the impact of individual research and development units, in turn, may be related to their activities resulting from the conditions resulting from the transformations in this field in Poland.¹⁴

Although Monica Giacotti and Marianna Mauro¹⁵ point out that *ambidexterity* occupies a special place at the response stage, it seems that the problem should be considered more broadly, situating it also in other stages of the development of a crisis, and taking into account the factors that influence the possibility of implementing *ambidexterity* behaviour.

In the consideration of *ambidexterity*, proposals for mechanisms of strategic renewal of the organisation, concerning the revitalisation of certain key competences and their structuring together with supporting actions (using innovative actions) can be used.¹⁶ The author of this publication draws attention to the importance of including in these considerations situations of strategic renewal resulting from the impacts of extreme turbulence of the environment. Dynamic capabilities described in the literature (as organisational routines) can be used to combine, reconfigure and renew resources (in the face of the volatility and unpredictability of the environment) using innovative behaviour. Creative improvisation can also be used for organisational change (independently of dynamic capabilities).¹⁷

¹³ B. Kozuch, K. Sienkiewicz-Małyjurek, "Paradoksy współpracy międzyorganizacyjnej w systemie zarządzania bezpieczeństwem publicznym", *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, no. 421: *Sieci międzyorganizacyjne, procesy i projekty w erze paradoksów*, 2016, pp. 289–300.

¹⁴ A. Chodyński, "State support for innovation actions in public security management", *Bezpieczeństwo. Teoria i Praktyka*, no. 4, 2020, pp. 55–73.

¹⁵ M. Giacotti, M. Mauro, "Building and improving the resilience of enterprises in a time of crisis: from a systematic scoping review to a new conceptual framework", *Economia Aziendale Online – Business and Management Sciences International Quarterly Review*, vol. 11, no. 3, 2020, pp. 307–339, <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=69&sid=eb57b339-324c-4d82-b6f1-0b390c4c1bc1%40sessionmgr102> [accessed: 3 April 2021].

¹⁶ J. Karpacz, "Mechanizmy odnowy strategicznej przedsiębiorstwa: przegląd literatury", *Zeszyty Naukowe Politechniki Łódzkiej*, no. 1147, 2013: *Organizacja i Zarządzanie*, no. 52, pp. 85–98.

¹⁷ A. Wójcik-Karpacz, "Zdolności dynamiczne w turbulentnym otoczeniu", *Organizacja i Kierowanie*, no. 4(138), 2018, pp. 51–69.

When considering issues of *ambidexterity* in terms of security, it is worth noting the strategic mechanism of organisational development relating to technological entrepreneurship.¹⁸ The author of this publication highlights the importance of this mechanism in view of the possibility of threats to the security of the entity and the benefits of implementing new technologies. It is important to point out the role of entrepreneurial orientation related to innovation both in the long term (innovation strategies) and in response to current threats (ad hoc innovation).¹⁹

Network aspect of *ambidexterity*

Organisational practices are used in the implementation of management mechanisms. The repetition of practices leads to routines.²⁰ The theme of routines is addressed in terms of *ambidexterity* also in relation to inter-organisational relationships. In this case, considerations relate to exploitation (based on established partners) and exploration (creating ties with new partners). Within the relationship, there is a differentiated approach to the use of exploratory routines (oriented to the use of partners' knowledge) and exploitative routines, oriented to the use of the company's own knowledge. *Ambidexterity* concerns, among other things, the coordination involved in the simultaneous use of both types of routines with a balance between them. Network research in terms of ambidexterity has addressed, among other things, innovation, openness, network position and top managers' ties. Among the transactional mechanisms of ambidexterity and alliances involving high-tech firms based on learning and mutual knowledge transfer, exchanges of experience and shared interpretation are described, as well as mutual investment and arrangements that enhance knowledge protection (hostage arrangement).²¹

The author of this article expresses the view that *ambidexterity* in the security context should be considered in terms of opportunities for cooperation with partners. It may imply an approach related to the creation of network links in the long and short term, including ad hoc, bearing in mind the access to specific own and partners' resources. A crisis situation, e.g. of a catastrophic nature, may induce actors to create ad

¹⁸ P. Kordel, "Konfiguracje elementów procesu zarządzania strategicznego w przypadku przedsiębiorczości technologicznej – analiza zbiorów rozmytych", *Przegląd Organizacji*, no. 7, 2018, pp. 9–18.

¹⁹ A. Chodyński, *Dynamika przedsiębiorczości...*, *op. cit.*, pp. 208–211.

²⁰ J. Karpacz, "Procedury jako narzędzie utrwalania rekurencyjnych wzorów zachowań pracowników", *Zarządzanie i Finanse*, vol. 1, no. 4 part 2, 2013, pp. 171–180.

²¹ A. Zakrzewska-Bielawska, *Ambidexterity w obliczu paradygmatu relacyjnego – wyzwaniem współczesnego zarządzania strategicznego*, [in:] *Wyzwania współczesnego zarządzania strategicznego*, eds. A. Sopińska, P. Wachowiak, Warszawa: Oficyna Wydawnicza SGH, 2017, pp. 177–192, http://zakrzewskabielska.pl/wp-content/uploads/2021/01/publikacja_I_2.pdf [accessed: 16 March 2022].

hoc links through chelation, in which the links between stakeholders are intensified and concern the possibility of using different types of resources for the survival of the organisation, both tangible and intangible.²² A new approach is required to study the chelation mechanism. The first step would be to identify the partners with their resources, assess the availability of these resources and then assess the possibilities of using them with, for example, bricolage. Ad hoc procedures would be developed regarding the use of resources in the face of risks. An *ambidexterity* approach would mean that the company should be aware of and prepared for risks and, based on the lessons learned, have a strategy for dealing with future risks. With such an approach, mechanisms for managing extreme turbulence in the environment (including chelation mechanisms) should be developed. In the case of sudden threats, according to the author of this publication, collective (collaborative) bricolage can also be used, relying on a network of partners with complementary resources. Among these resources, he points to knowledge. This form of cooperation is treated as an innovative process.²³

The ecological aspect of *ambidexterity*

Ecological issues, including *ambidexterity* are considered in the context of companies' business strategies.²⁴ *Ambidexterity* is also discussed in terms of environmental (ecological) entrepreneurship of companies²⁵ and the implementation of green innovations of *ambidexterity*.²⁶ Starting from resource and agency theory, the role of *innovation ambidexterity* (IA) was referred to in relation to the concept of *sustainability*, taking into account the natural environment (*environment sustainability*, ES). The components of ES are related to natural environment security activities, while *environmental sustainability* positively influences both *exploitative* and *explorative* innovation. ES is considered as an antecedent for balancing both types of innovation to create competitive advantage. IA is a key dynamic capability of

²² A. Chodyński, "Security in public governance: an introduction", *Bezpieczeństwo. Teoria i Praktyka*, no. 4, 2020, p. 19.

²³ A. Gurca, M.N. Ravishankar, "A bricolage perspective on technological innovation in emerging markets", *IEEE Transactions on Engineering Management*, vol. 63, no.1, 2015, pp. 53–66.

²⁴ F. Martinez, "Corporate strategy and the environment: towards a four-dimensional compatibility model for fostering green management decisions", *Corporate Governance: The International Journal of Business in Society*, vol. 14, no. 5, 2014, pp. 607–636.

²⁵ I. Shafique, M.N. Kalyar, N. Mehwish, "Organizational ambidexterity, green entrepreneurial orientation, and environmental performance in SMEs context: Examining the moderating role of perceived CSR", *Corporate Social Responsibility and Environmental Management*, vol. 28, no. 1, 2021, pp. 446–456, <https://ideas.repec.org/a/wly/corsem/v28y2021i1p446-456.html> [accessed: 16 March 2022].

²⁶ Y. Sun, H. Sun, "Green innovation strategy and ambidextrous green innovation: The mediating effects of green supply chain integration", *Sustainability*, vol. 13, no. 9, 2021, 4876, <https://www.mdpi.com/2071-1050/13/9/4876/htm> [accessed: 16 March 2022].

the organisation. Ambidextrous innovation behaviour is considered as needed by the organisation, it is related to simultaneity in relation to exploitative (based on existing or renewed knowledge) and exploratory behaviour. The implementation of exploitative innovation, oriented towards short-term benefits, is associated with incremental activities. Exploratory innovation, considered over the long term, involves radical activities, using new knowledge.²⁷ It is possible to present the view that a topic that requires extended research is the area of dynamic capabilities in risk situations, including ecological ones, to ensure the security of organisations.

The author of this paper takes the view that, in an environmental context, *ambidexterity* will refer to the continuous improvement of technology and production (cleaner production) and simultaneous action for radical change, e.g. through innovative measures (realisation of clean production or clean technology). This approach is linked to the implementation of *sustainability*.

Ambidexterity should take into account the reciprocity aspects of company-environmental (ecological, natural) interactions, taking into account ecological risks and the feasibility of ecological security management systems. Within the concept of a sustainable enterprise, which takes into account economic, social and ecological aspects, the issue of an extended understanding of environmental (ecological) risk is raised. It is characterised by a two-sided impact: the impact of human activity on the natural environment and the impact of natural forces on the economy and humans.²⁸

Conclusions

The issue of organisational security can be considered in relation to the main research strands of *ambidexterity* already mentioned: learning, knowledge management, innovation, leadership and organisational culture.

The literature indicates that a company pursuing *ambidexterity* can be considered as an intelligent organisation.²⁹ The proposed solutions concern separate organisational structures for exploration and exploitation activities. Further research should indicate to what extent these activities should encompass the problems (including mechanisms) of organisational security management.

Ecological issues may concern the need for action to build competitive advantage (including innovative behaviour), but also the ongoing response to extreme

²⁷ M.V. Ciasullo, R. Montera, A. Douglas, "Environmental sustainability and board independence: What effects on innovation ambidexterity?", *Corporate Governance and Research & Development Studies*, no. 1, 2020, pp. 41–63.

²⁸ A. Panasiewicz, "Zarządzanie ryzykiem ekologicznym jako narzędzie równoważenia rozwoju organizacji", *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, no. 377: *Zrównoważony rozwój organizacji – odpowiedzialność środowiskowa*, 2015, pp. 230–239.

²⁹ A. Zakrzewska-Bielawska, "Ambidextrous organization jako przykład przedsiębiorstwa inteligentnego", *Studia i Prace Kolegium Zarządzania i Finansów SGH*, no. 48, 2016, pp. 161–174.

environmental turbulence (e.g. natural and industrial disasters). In the long term, the effects of global warming on the functioning of companies should be taken into account. Co-ordinating actions (management mechanisms) in current situations with extreme environmental turbulence based on past experience will be difficult due to the unexpected and unpredictable nature of the risks involved. The use of partner resources will require knowledge of these resources and also short-term decision-making. On the one hand, the long-term nature of the cooperation will be a favourable factor, while on the other hand, links with new (ad hoc) partners, necessitated by the situation, will gain in importance.

The unpredictable nature of extreme risks makes it necessary to take a new look at theories of how companies operate, including in crisis situations. More attention should be paid to the issue of non-economic crises with a focus on the possibilities of ensuring the continuity of the organisation.³⁰

Today, the issue of businesses, including those operating within critical infrastructure, is considered in the light of technological change, entrepreneurship, innovation or stakeholder influence. Stakeholder impacts may also include considering the importance of the possibility of crisis situations and crises that pose a threat to people and the natural environment and preparing in advance for these threats by adopting *ambidexterity* assumptions.

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Using ambidexterity in the ecological security management of organisations

Abstract

The main currents of research on ambidexterity in the context of organisational security with emphasis on the role of network links are indicated. The hypothesis that *ambidexterity*, using governance mechanisms, can support the functioning of an organisation in both strategic and operational perspectives in the face of unexpected extreme turbulence in the environment related to the environmental factor is substantiated.

This implies, on the one hand, the need to prepare a strategy of resistance and resilience and, on the other hand, a readiness for ad hoc behaviour. *Ambidexterity* was considered in the context of cooperation with partners, with a view to accessing certain own and partners' resources in a crisis situation. In an ecological context, the influence of *ambidexterity* on the continuous improvement of the organisation's performance was discussed, paying attention to the simultaneous efforts for radical change based on innovative actions, starting from the assumption of *sustainability*, in cooperation with stakeholders. A review of the concept of *ambidexterity* in relation to the issue of organisational security was conducted based on a critical analysis of the literature on the subject. A research gap related to this area was identified. The aim of the study was to identify opportunities for the use of *ambidexterity* in organisations in emergency situations.

Key words: ambidexterity, resilience, ecological security, management mechanisms

