

A CONCEPT OF ORGANISATIONAL RESILIENCE MEASUREMENT AND ASSESSMENT

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Purpose: The cognitive aims of the article included (1) a diagnosis to what extent the density of crisis factors has influenced the development of empirical research in the field of operationalising organisational resilience and (2) an assessment of the application capabilities for its measurement methods proposed thus far.

Design/methodology/approach: In order to achieve such a formulated objective, a systematic literature review and an analysis of reports from scientific studies were undertaken (extracted from the Scopus and Web of Science database). An in-depth exploration of identified texts structured knowledge on the concepts organisational resilience assessment and measurement, while taking into account time intervals.

Findings: All to date's attempts to measure and assess organisational resilience have rather been modest, if not circumscribed, while discrepancies of a conceptual and definitional nature do not facilitate the operationalisation of the concept. In addition, its heterogeneity means that any attempts to quantify organisational resilience involve a number of assumptions. Various authors' concepts for resilience measurement have been proposed in the literature, particularly for organisations in the industries and sectors for which the impact of the pandemic was most severe. However, no standard has been developed in this area, although promises of one were made in a number of pre-2020 scientific papers.

Practical implications: The spread and further development of the concept of organisational resilience measurement is largely determined by the level of managerial awareness of the usefulness of such measurement for organisational survival and decision support.

Originality/value: The findings present the extent and sophistication of methods for measuring organisational resilience over time. A research using bibliometric techniques made it possible to indicate the stage of development of our research. It can be seen that the academic debate on organisational resilience is resurgent and takes on new dimensions at watershed moments, i.e.: pandemic. The study undertaken extends and organises the knowledge drawn from the literature. In addition, the collected empirical material allowed for a preliminary critical assessment of the application potential of the proposed model solutions.

Keywords: organisational resilience, time intervals, measurement.

Category of the paper: Literature review.

1. Introduction

The observed increasing density of the organisational environment (Chodyński, 2021; Troise et al., 2022), resulting from the overlapping and mutual reinforcement of complex phenomena and changes of a discontinuous nature (climate crises, pandemics or the consequences of warfare), forces companies to take adaptation measures and contributes to the emergence of new management concepts and methods. In response to negative changes in the environment, the concept of organisational resilience is of great interest to representatives of management sciences.

In the application dimension, its development and operationalisation can contribute to enhancing the ability of organisations to cope with risks or to overcome them more quickly. This provides an impetus to undertake large-scale studies of organisational resilience.

The category of resilience has been adapted to the specificities of households (McKnight, Rucci, 2020), non-profit organisations (Searing et al., 2021), non-financial corporations (Samborski, 2022), family businesses (Ingram, 2023; Conz et al., 2020), public sector institutions (Barbera et al., 2017), government (Chang, 2021), business organisations (Granig, Hilgarter, 2020; Grego et al., 2024), supply chains (Hillmann, Guenther, 2021) or groups and task forces (Barton, Kahn, 2019; Pavez et al., 2021). The multifaceted nature of the ongoing scholarly discussion means that the validity of organisational resilience measurement is also recognised, and promises of a solution to this have already emerged in scholarly texts from 2008 through 2013 (Lee et al., 2013). Scherbaum and Meade (2013) emphasise that 'better measurement is the key to better research and theory'. This opens up an interesting field of theoretical and research considerations.

The cognitive aim of the article was to diagnose to what extent the concentration of crisis factors had influenced the development of empirical research in the area of operationalising organisational resilience and to assess the applicability of the methods proposed so far for its measurement. A research using bibliometric techniques made it possible to indicate the stage of development of our research. It can be seen that the academic debate on organisational resilience is resurgent and takes on new dimensions at watershed moments, i.e.: pandemic.

2. Theoretical background

Unforeseen and exceptional situations or events that negatively affect the functioning of an organisation are the direct cause of researchers' interest in the issue of organisational resilience (Weick, Roberts, 1993; Weick, 1993). Resilient organisations have the ability to

renew and maintain their competitive advantage, regardless of unfavourable conditions, they are able to build their market position also in the long term (Kozielski, 2022).

Duchek (2020) points out that the resilience concept is relatively new in business and management research, there is also a perceived lack of an overarching theoretical framework of organisational resilience (Duchek, 2020, p. 220), and research is fragmented.

At the same time, the scientific debate on organisational resilience and its measurement is resurgent and takes on new dimensions at turning points, i.e.: economic crisis or pandemic. Also in the business space, the need for solutions and tools to overcome market shocks is reported. A review of the definitions of organisational resilience shows that the concept can be understood in two ways. Passive resilience is the ability to respond to crises, allowing the organisation to recover (Ali, Gölgeci, 2019), to absorb disruptions and shocks (Mitchell, 2013, p. 7). Another view indicates that it is the ability to anticipate unexpected events, in which case we speak of active resilience (Annarelli, Nonino, 2016).

Resilient organisations have the ability to maintain existing core structures and they excel at anticipating, absorbing, and adjusting to changes (Ortiz-de-Mandojana, Bansal, 2016). This capability may manifest itself in the ability to implement appropriate algorithms or predictive mechanisms for recovery (Filimonau et al., 2020) as well as for revival from difficulties (Marcucci et al., 2021).

The cited definitions of organisational resilience indicate the capaciousness and complexity of the concept, as commonly pointed out by researchers. In addition, the matter is complicated by the fact that organisational resilience can be understood as a response to unpredictable events of different nature: economic (Sahebjamnia et al., 2018), ecological (Hillmann, Geunther, 2021), or social (Cruz et al., 2014).

The results of the bibliometric analysis indicate the existence of events that, on one hand, posed a serious threat to the survival of the organisation, while on the other, made an important contribution to the development of research on organisational resilience. It is therefore possible to point out a certain tendency to develop research in this area as a result of the occurrence of negative disruptions, i.e. the economic crisis after 2008, the pandemic in 2020, the growing climate crisis. This makes it all the more pertinent to indicate whether the pandemic conditions of the organisation have contributed to the development of organisational resilience measurement solutions.

Developing an appropriate instrumentation is indicated as a challenge more important than ever before (Ilseven, Puranam, 2021). The prerequisite for the implementation of the issue for the use of business practice is, first of all, the precision and consistency of its definition (Podsakoff et al., 2016), followed by the development of an organisational resilience assessment tool that, on one hand, diagnoses the scale of the potential problem, while on the other, may identify areas that require corrective action.

Sevilla and team (2023) argues that the increased interest in the concept and the attempts being made to measure organisational resilience are driven by an organisation's desire to maximise the likelihood of business continuity. Already before the pandemic, one could see increasing attempts to structure the issue of organisational resilience, identifying characteristics, resources or attributes specific to a resilient organisation (Williams et al., 2017). Of note is the paper by Hillmann & Geunther (2021), which presents a comprehensive review of organisational resilience research. The authors already pointed out in 2021 the need for more clarity in the measurement of organisational resilience. Similar scientific studies of a stock-taking nature (especially those prior to the pandemic) can be seen as a call for a broader interest in the issue of measurement, primarily from an empirical perspective. In the face of a critical event, such as the pandemic undoubtedly was, a legitimate question arises as to whether, in line with the reported demand, the work on standardising organisational resilience measurement tools has been intensified and whether concrete results of this work can be pointed to.

3. Method

For the purpose of achieving the formulated objective, a systematic literature review of publications, indexed in the Web of Science (WoS) and Scopus (Sc) electronic databases, was used, with a focus on the post-pandemic period. Numerous advantages of this method are pointed out. The usefulness of a systematic literature review stems primarily from methodological rigour, the elimination of limitations inherent in traditional reviews and the ability to replicate scientific research (Czakoń, 2013), which ultimately affects the objectivity of the research. In recent years, a systematic literature review has become a practical solution to comprehensively analyse different types of research topics (Denyer, Tranfield, 2009).

In a subsequent step, a full-text analysis of articles from the reference database made it possible to structure the knowledge on organisational resilience measurement proposals. The research assumption was to perform an exploratory and verification function (Kuciński, 2014), and the entire procedure is shown in Table 1.

The essential starting point of the research conducted was to identify publications containing the phrase 'organisation* resilience + measure*' (differences in the spelling of British English and American English were taken into account). The Web of Science database yielded 2350 and the Scopus database 2869 such records. In subsequent steps, exclusion criteria were identified and applied, as outlined in a systematic literature review (Fink, 2014), the application of which yielded a reference sample of publications. Only studies in the form of articles were classified for further analysis, following Czakoń's (2013, p. 48) argumentation that: 'given the number of articles published in the globalised research community, their annual growth or timeliness vs. book publications, it is the continuing publications that become the vehicle for research development'.

Another filtering criterion was the Scopus subject area: “Business, Management and Accounting” / Web of Science Categories: „Business” and “Management”. Language filtering was also applied, limiting the articles to English-language versions so that they can be subjected to international evaluation and discussion.

Table 1.

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Steps in searching for publications	The number of records	
	WoS	Scopus
1. Results for “organi?ation* resilience” + “measure*” (status: 2024-07-10)	2350	2869
2. Narrowing to document types: Article (final and open access)	1095	1112
3. Narrowing to: - Web of Science Categories: „Business” and “Management”, - Scopus subject area: “Business, Management and Accounting”	88	116
4. Narrowing to English language	88	110
5. Total number of records with no duplicates (44)	154	
Total number of records – the result of abstract contents analysis	154	
Total number of articles relating to the measurement of organisational resilience (proposals for measurement scales) – the result of full-text article contents analysis.	16	

Source: Own elaboration.

In the end, the reference database, after removal of duplicates, comprised 154 records. In subsequent stages (first as a result of the contents analysis of abstracts and then as a result of the contents analysis of full-text articles), the studies treating resilience and its measurement as a side issue were excluded.

4. Results

An analysis of the global scientific output in the field of organisational resilience revealed some patterns. Pre-2020 scientific inquiries tend to be qualitative and interdisciplinary, referring, for example, to positive psychology (Avey et al., 2008) or organisational development more broadly. This is confirmed, for example, by Stephenson (2010), who understands organisational resilience not only as the ability to maintain stability, to return to a state of homeostasis, but also to thrive, despite unfavourable conditions.

Initially, authors looked, among other things, at the ability of organisations to self-renew themselves over time through innovation (Reinmoelle, Baardwijk, 2005). Works addressed both the economic, social and environmental aspects of resilience. According to Cimellaro and team (2010), it is the time it takes for an organisation to recover and reach an acceptable level of performance after a disruptive event that can be a measure to ensure that organisational resilience can be compared between organisations.

It is impossible not to agree with Romanowska (2012) that, despite its popularity, the concept has not been operationalised, with researchers limiting themselves to identifying characteristics that shape resilience or using indicators that measure economic health or risk of bankruptcy.

The timing of negative and unpredictable environmental changes, caused by the pandemic, led to a redefinition of the concept of organisational resilience. As shown in Table 2, post-2020 qualitative research still prevails, narrowing the context of consideration to a specific organisation using case studies. However, one can also see attempts to quantify resilience, developing measurement scales or conceptual assumptions in relation to companies in sensitive sectors for which the pandemic was most severe (micro and small enterprises or hotels). The contextualisation or restriction of considerations to a specific industry (Garcia-Perez et al., 2022; Shela et al., 2023) greatly affects the representativeness of the results obtained.

As shown in Table 2, there were also attempts to link organisational resilience to the economic or financial efficiency of companies. Examples include a research by Sajko and co-workers (2020). Organisation surveys and Likert scales are often used, and the measurement of organisational resilience itself is a comparison of the results obtained in the survey with a benchmark, which is usually a previous survey (Sevilla et al., 2023, p. 206). Among others, Pathak and Joshi (2021), using the Likert scale, identified indicators that can be used to improve organisational resilience. In contrast, Ilseven and Puranam (2021) treat organisational resilience measurement as a performance outcome.

Table 2.

Summary of publications dealing with the subject of organisational resilience measurement based on a systematic literature review

Year	Author / Title	Sector / country / context
2024	Lestari, E.D., Abd Hamid, N., Shamsuddin, R., Kurniasari, F., Yaacob, Z.: Investigating the factors of SMEs' business resilience in the post-pandemic crisis of COVID-19 with technology adoption as a quasi-moderator: a multigroup analysis of Indonesian and Malaysian SMEs	SMEs / Malaysia and Indonesia context: COVID-19 Type of construct / dimension: a multigroup analysis
2024	Rubakha, M., Tkachyk, L., Pryimak, I., Demchyshak, N., Yurkiv, R.: Factor analysis of financial performance and formation of strategic resilience in Ukrainian IT companies under the challenges of war	IT companies / Ukraine / context: war Type of construct / dimension: multifactorial multiplicative model and a factor analysis of the financial performance
2024	Korpysa, J., Judit, O.: Startups' organizational resilience in post-COVID times	Startups / Poland / context: COVID-19 Type of construct / dimension: Efficient use of market information, Efficient acquisition of new financial resources, Efficient anticipation of market trends, Efficient implementation of process innovations, Efficient acquisition of new customers, Efficient building of customer loyalty, Efficient change implementation and management, Efficient anticipation of market failures construct: multi-dimensional

Cont. table 2.

2023	Liu, X.H., Tse, Y.K., Wang, S.Y., Sun, R.Q.: Unleashing the power of supply chain learning: an empirical investigation	Operational resilience / supply chain learning Context: China construct: multi-dimensional
2023	Nguyen, H., Pham, A.V., Pham, M.D., Pham, M.H.: Business resilience: Lessons from government responses to the global COVID-19 crisis	context: COVID-19 corporate default risk as a measure of non-resilience
2021	González, A.C., Pérez-Urbe, M.A.: Family business resilience under the COVID-19: A comparative study in the furniture industry in the United States of America and Colombia	office furniture industry / Colombia and the USA context: COVID-19/ construct: multi-dimensional
2021	Ilseven, E., Puranam, P.: Measuring organizational resilience as a performance outcome	divisions, departments and teams or alliances, ecosystems, meta-organizations/ measure resilience in terms of changes to organizational performance after unexpected adversity (like Weick, 1993), construct: multi-dimensional
2020	Conz, E., Lamb, P.W., De Massis, A.: Practicing resilience in family firms: An investigation through phenomenography	family business / contribution of owners/managers in practicing resilience / phenomenography, an interpretive methodology
2020	Melián-Alzola, L., Fernández-Monroy, M., Hidalgo-Peñate, M.: Hotels in contexts of uncertainty: Measuring organizational resilience	hotels / the Canary Islands a holistic model to measure organisational resilience, , predictors of resilience (strategy and change), construct: multi-dimensional
2020	Păunescu, C., Mátyus, E.: Resilience measures to dealing with the COVID-19 pandemic. Evidence from Romanian micro and small enterprises	micro and small enterprises / Romania context: COVID-19 a questionnaire-based survey / an exploratory factor analysis / construct: multi-dimensional: openness to production innovation and adaptation, a strong support for customers and communities
2020	Sajko, M., Boone, C., Buyl, T.: CEO greed, corporate social responsibility, and organizational resilience to systemic shocks	context: global financial crisis organisational resilience measurement as a performance outcome
pandemic COVID-19		
2018	Parker, H., Ameen, K.: The role of resilience capabilities in shaping how firms respond to disruptions	emerging economy during a period of severe power supply disruptions/ short scale of resilience / construct: multi-dimensional
2016	Ortiz-de-Mandojana, N., Bansal, P.: The long-term benefits of organizational resilience through sustainable business practices.	companies operating on international markets context: sustainability/climate change / ecological resilience / ex-post analysis / construct: one-dimensional - survival
2012	Mafabi, S., Munene, J.C., Ntayi, J.M.: Knowledge management and organisational resilience: Organisational innovation as a mediator in Uganda parastatals.	family businesses context: long-term perspective Measurement scale for organizational resilience / one score for organizational resilience construct / multi-dimensional / construct: multi-dimensional
2008	Lee, A.V., Vargo, J.J., Seville, E.: Developing a Tool to Measure and Compare Organizations' Resilience	Relative Overall Resilience Model - factors: Situation Awareness, Vulnerabilities, Adaptive Capacity / construct: multi-dimensional
2008	McManus, S., Seville, E., Vargo, J., Brunsdon, D.: Facilitated Process for Improving Organizational Resilience	10 case study organizations / multi-dimensional a wide range of industry sectors, business types, and sizes in New Zealand / construct: multi-dimensional

Source: Own elaboration.

Undoubtedly, the pandemic experience increased researchers' interest in the topic of organisational resilience. However, the diversity and multidimensionality of the proposed measurement metrics and the lack of a developed standard of measurement means that there is still a cognitive deficiency in this area. The existing solutions do not make the business case for investing in resilience, they do not identify areas of strengths and weaknesses for a company to build resilience before a crisis occurs. It is not uncommon for these constructs to be laden with subjectivity, and this is contributed to, for example, by the lack of precise definition of the organisational resilience component variables.

Measures of categories, standing in opposition to organisational resilience, are also proposed, e.g. vulnerability. Resilience can be assessed using objective indicators (e.g. total revenue, the return on capital, sales growth or debt levels) as well as subjective indicators (e.g. customer satisfaction, staff development) (Torres et al., 2019).

An interesting problem is highlighted by Greenham and team (2013) pointing out that interventions that increase gross domestic product can and often do conflict with other factors that build organisational resilience. The potential for conflict between macro and micro approaches, on an application level, adds to the difficulty of measuring and assessing resilience in an integrated way. Research to date has been dominated by a retrospective approach, i.e. organisational resilience is analysed mainly after disruptions have occurred (Linnenluecke, 2017). In contrast, interesting conclusions are provided by the research of Sevilla and team (2023), indicating that 'organisational resilience is a rather adynamic process' and therefore 'it cannot be measured or estimated in an ex-ante way'.

All to date's attempts to measure and assess organisational resilience have rather been modest, if not circumscribed, while discrepancies of a conceptual and definitional nature do not facilitate the operationalisation of the concept. In addition, its heterogeneity means that any attempts to quantify organisational resilience involve a number of assumptions. Various authors' concepts for resilience measurement have been proposed in the literature, particularly for organisations in the industries and sectors for which the impact of the pandemic was most severe.

An analysis of global research shows that attempts to operationalise organisational resilience are relatively scarce. They are limited to describing its qualitative attributes, i.e. employee commitment, leadership, agile decision-making, innovation, internal resources, and a proactive attitude (Stephenson, 2010), as well as the use of measurement scales. There have been notable efforts to adapt Stephenson's (2010) Benchmark Resilience Tool questionnaire for use by companies operating in contexts outside the US, including Poland (Rzegocki, 2021). However, the pandemic did not bring about a significant breakthrough in the development of measurement tools or a universally accepted standard. Several key limitations in measuring organisational resilience can still be identified.

Firstly, as organisational resilience is a theoretical construct, its direct measurement – inherent in the mathematical sciences – is challenging (Dyduch, 2015). Factors contributing to an organisation's resilience include the management of intangible resources, conflict prevention mechanisms, and risk awareness. Developing a single synthetic indicator appears to be unfeasible, which is why a multi-item approach has been used up to this point. Future research should aim to develop a comprehensive measurement of organisational resilience, taking into account the numerous factors that contribute to it.

Secondly, the widespread use of Likert scales to measure organisational resilience often focuses on capturing respondents' opinions, attitudes, or perspectives, making the measurement prone to subjectivity.

Thirdly, the measurement of organisational resilience is highly contextual, limiting the comparability of results, especially in international or cross-sectoral analyses. However, exploring organisational resilience in different contexts also highlights that the concept is widely recognised and valued globally.

Fourthly, a key limitation of the solutions proposed thus far is their retrospective nature, which does not offer a foundation for broader inference or forecasting. The COVID-19 crisis, however, highlights the growing need to develop an early warning system for future risks. Additionally, measuring organisational resilience must account for its dynamic nature, requiring an evaluation of the impact of shocks on the organisation's environment.

In light of these findings, while measuring organisational resilience remains challenging, it is essential to focus on this area, and we can expect growing interest in the topic. Without proper measurement, there is a lack of control and an inability to manage effectively, especially during a time when crises are widespread.

5. Summary

Resilience is widely recognised as a desirable attribute for organisations (cf. Hamel, Välikangas, 2003; Ortiz-de-Mandojana, Bansal, 2016; Granig, Hilgarter, 2020; Grego et al., 2024). Both pre-pandemic and 2020-2024 research papers emphasise that managing disruptions and unexpected events, in order to shorten adverse repercussions and accelerate an organisation's return to its original or better state, is a must.

At the same time, organisational resilience is a research subject that translates into an increasing number of publications, however, the undertaken attempts to operationalise and measure this phenomenon are of limited utility.

All to date's attempts to measure and assess organisational resilience have rather been modest, while discrepancies of a conceptual and definitional nature do not facilitate the operationalisation of the concept. However, no standard has been developed in this area, although promises of one were made in a number of pre-2020 scientific papers.

The pandemic-induced focus of research attention on the search for methods to measure organisational resilience has not resulted in any coherent, unambiguous solutions. The performed review of the literature indicated that the proposed model solutions had significant limitations and did not meet the needs of the business community. Importantly, their contextualisation did not allow for an assessment of any organisation and the progress it achieved in building organisational resilience (Lee et al., 2013). Some researchers (Yao, Fabbe-Costes, 2018) question the possibility of explicitly defining organisational resilience, which has its negative consequences for the development of an indicator to assess the likelihood of survival for an organisation.

The rather limited usefulness of measurement scales is also due to the fact that the resilience of a particular organisation is closely linked to a number of socio-cultural factors (cf. Lee et al., 2013), which are difficult to measure, and the concept of organisational resilience itself is multidimensional and dependent on a broader context. It is then to be expected that the issue of organisational resilience measurement will continue to be exposed.

The spread and further development of the concept of organisational resilience measurement is largely determined by the level of managerial awareness of the usefulness of such measurement for organisational survival and decision support.

References

1. Ali, I., Gölgeci, I. (2019). Where is supply chain resilience research heading? A systematic and co-occurrence analysis. *International Journal of Physical Distribution & Logistics Management*, Vol. 49(8), pp. 793-815, doi:10.1108/ijpdlm-02-2019-0038
2. Annarelli A., Nonino F. (2016). Strategic and Operational Management of Organizational Resilience: Current State of Research and Future Directions. *Omega-International Journal of Management Science*, Vol. 62, pp. 1-18, doi:10.1016/j.omega.2015.08.004
3. Avey, J.B., Wernsing, T., Luthans, F. (2008). Can positive employees help positive organizational change? Impact of psychological capital and emotions on relevant attitudes and behaviours. *The Journal of Applied Behavioural Science*, 44(1), pp. 48-70, doi:10.1177/0021886307311470
4. Barbera, C., Jones, M., Korac, S., Saliterer, I., Steccolini, I. (2017). Governmental financial resilience under austerity in Austria, England and Italy: How do local governments cope

- with financial shocks? *Public Administration*, Vol. 95, Iss. 3, pp. 670-697, doi:10.1111/padm.12350
5. Barton, M.A., Kahn, W.A. (2019). Group resilience: The place and meaning of relational pauses. *Organization Studies*, Vol. 40(9), pp. 1409-1429, doi:10.1177/0170840618782294
 6. Canwat, V. (2024). COVID-19-related supply chain disruptions: resilience and vulnerability of micro, small and medium enterprises. *Cogent Business & Management*, Vol. 11, No. 1. doi:10.1080/23311975.2024.2315691
 7. Chang, A. (2021). Resource Stability and Federal Agency Performance. *American Review of Public Administration*, Vol. 51, Iss. 5, pp. 393-405.
 8. Chodyński, A. (2021). *Dynamika przedsiębiorczości i zarządzania innowacjami w firmach: Odpowiedzialność, prospołeczność, ekologia, bezpieczeństwo*. Kraków: Oficyna Wydawnicza KAAFm.
 9. Cimellaro, G.P., Reinhorn, A.M., Bruneau, M. (2010). Framework for analytical quantification of disaster resilience. *Engineering Structures*, Vol. 32(11), pp. 3639-3649, doi:10.1016/j.engstruct.2010.08.008
 10. Conz, E., Lamb, P.W., De Massis, A. (2020). Practicing resilience in family firms: An investigation through phenomenography. *Journal of Family Business Strategy*, Vol. 11, No. 2, doi: 10.1016/j.jfbs.2020.100355
 11. Cruz, C., Larraza-Kintana, M., Garcés-Galdeano, L., Berrone, P. (2014). Are Family Firms Really More Socially Responsible? *Entrepreneurship Theory and Practice*, Vol. 38(6), pp. 1295-1316, doi:10.1111/etap.12125
 12. Czakon, W. (2013). Metodyka systematycznego przeglądu literatury. In: W. Czakon (Ed.), *Podstawy metodologii badań w naukach o zarządzaniu*. Warszawa: Wolters Kluwer.
 13. Denyer, D., Tranfield, D. (2009). Producing a systematic review. In D.A. Buchanan, A. Bryman (Eds.), *The Sage handbook of organizational research methods*. pp. 671-689. Sage Publications Ltd.
 14. Duchek, S. (2020). Organizational resilience: a capability-based conceptualization. *Business Research*, Vol. 13, Iss. 1. Heidelberg: Springer, pp. 215-246, doi:10.1007/s40685-019-0085-7
 15. Dyduch, W. (2015). Cel i przebieg badań z wykorzystaniem metod ilościowych. In: W. Czakon (Ed.), *Podstawy metodologii i badań w naukach o zarządzaniu* (pp. 306-331). Warszawa: Wolters Kluwer.
 16. Filimonau, V., Derqui, B., Matute, J. (2020). The COVID-19 Pandemic and Organisational Commitment of Senior Hotel Managers. *International Journal of Hospitality Management*, Vol. 91, doi:10.1016/j.ijhm.2020.102659
 17. Fink, A. (2014). *Conducting research literature reviews: from the internet to paper*. https://books.google.fi/books?id=Dg5zAwAAQBAJ&dq=fink+2014+conducting+research+literature+review&lr=&source=gbs_navlinks_s

18. Garcia-Perez, A., Cegarra, J.G., Sallos, M., Chinnaswamy, A. (2022). Resilience in healthcare systems: Cyber security and digital transformation. *Technovation*, Vol. 121, doi:10.1016/j.technovation.2022.102583
19. González, A.C., Pérez-Urbe, M.Á. (2021). Family business resilience under the COVID-19: A comparative study in the furniture industry in the United States of America and Colombia. *Estudios Gerenciales*, Vol. 37, No. 158, pp. 138-152, doi:10.18046/j.estger.2021.158.4423
20. Granig, P., Hilgarter, K. (2020). Organisational resilience: A qualitative study about how organisations handle trends and their effects on business models from experts' views. *International Journal of Innovation Science*, Vol. 12(5), pp. 525-544, doi:10.1108/IJIS-06-2020-0086
21. Greenham, T., Cox, E., Ryan-Collins, J. (2013). *Mapping Economic Resilience*. Friends Provident Foundation. www.friendsprovidentfoundation.org
22. Grego, M., Magnani, G., Denicolai, S. (2024). Transform to adapt or resilient by design? How organizations can foster resilience through business model transformation. *Journal of Business Research*, Vol. 171, doi:10.1016/j.jbusres.2023.114359
23. Hamel, G., Valikangas, L. (2003). The Quest for Resilience. *Harvard Business Review*, Vol. 81(9), pp. 52-63.
24. Hillmann, J., Guenther, E. (2021). Organizational Resilience: A Valuable Construct for Management Research? *International Journal of Management Reviews*, Vol. 23, No. 1, pp. 7-44, doi:10.1111/ijmr.12239
25. Ilseven, E., Puranam, P. (2021). Measuring organizational resilience as a performance outcome. *Journal of Organization Design*, Vol. 10, Iss. 3, pp. 127-137, doi:10.1007/s41469-021-00107-1
26. Ingram, T. (2023). *Odporność organizacyjna przedsiębiorstw rodzinnych*. Katowice: Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, doi:10.22367/uekat.9788378758341
27. Korpysa, J., Oláh, J. (2024). Startups' organizational resilience in post-COVID times. *International Journal of Management and Economics*, Vol. 60(1), pp. 3-11, doi:10.2478/ijme-2023-0022
28. Kozielski, R. (2022). *Rynkowy due diligence. Pomiar odporności rynkowej organizacji*. Warszawa: PWN.
29. Kuciński, K. (2014). *Naukowe badanie zjawisk gospodarczych. Perspektywa metodologiczna*. Warszawa: Wolters Kluwer Polska.
30. Lee, A.V., Vargo, J.J., Seville, E. (2013). Developing a Tool to Measure and Compare Organizations' Resilience. *Natural Hazards Review*, Vol. 14, pp. 29-41.
31. Lestari, E.D., Abd Hamid, N., Shamsuddin, R., Kurniasari, F., Yaacob, Z. (2024). Investigating the factors of SMEs' business resilience in the post-pandemic crisis of COVID-19 with technology adoption as a quasi-moderator: a multigroup analysis of

- Indonesian and Malaysian SMEs. *Cogent Business & Management*, Vol. 11(1), doi:10.1080/23311975.2023.2301135
32. Linnenluecke, M.K. (2017). Resilience in business and management research: A review of influential publications and a research agenda. *International Journal of Management Reviews*, Vol. 19(4), pp. 4-30, doi:10.1111/ijmr.12076
33. Liu, X., Tse, Y.K., Wang, S., Sun, R. (2023). Unleashing the power of supply chain learning: An empirical investigation. *International Journal of Operations and Production Management*, Vol. 43(8), pp. 1250-1276, doi:10.1108/IJOPM-09-2022-0555
34. Mafabi, S., Munene, J.C., Ntayi, J.M. (2012). Knowledge management and organisational resilience: Organisational innovation as a mediator in Uganda parastatals. *Journal of Strategy and Management*, Vol 5(1), pp. 57-80. doi:10.1108/17554251211200455
35. Marcucci, G., Antomarioni, S., Ciarapica, F.E., Bevilacqua, M. (2021). The impact of operations and IT-related Industry 4.0 key technologies on organizational resilience. *Production Planning and Control*, Vol. 15, pp. 1-15, doi:10.1080/09537287.2021.1874702
36. McKnight, A., Rucci, M. (2020). The financial resilience of households: 22 country study with new estimates, breakdowns by household characteristics and a review of policy options. *CASE Papers /219*. Centre for Analysis of Social Exclusion, LSE.
37. McManus, S., Seville, E., Vargo, J., Brunson, D. (2008). Facilitated Process for Improving Organizational Resilience. *Natural Hazards Review*, Vol. 9(2), pp. 81-90, doi:10.1061/(ASCE)1527-6988(2008)9:2(81)
38. Melián-Alzola, L., Fernández-Monroy, M., Hidalgo-Peñate, M. (2020). Hotels in contexts of uncertainty: Measuring organisational resilience. *Tourism Management Perspectives*, Vol. 36, doi: 10.1016/j.tmp.2020.100747
39. Mitchell A. (2013). *Risk and Resilience: From Good Idea to Good Practice*. OECD Development Co-operation Working Papers, No. 13. Paris: OECD, doi:10.1787/5k3ttg4cxcbp-en
40. Nguyen, H., Pham, A.V., Pham, M.D., Pham, M.H. (2023). Business resilience: Lessons from government responses to the global COVID-19 crisis. *International Business Review*, Vol. 32(5), doi:10.1016/j.ibusrev.2023.102166
41. Ortiz-de-Mandojana, N., Bansal, P. (2016). The long-term benefits of organizational resilience through sustainable business practices. *Strategic Management Journal*, Vol. 37(8), pp. 1615-1631, <http://www.jstor.org/stable/43898026>
42. Parker, H., Ameen, K. (2018). The role of resilience capabilities in shaping how firms respond to disruptions. *Journal of Business Research*, Vol. 88, pp. 535-541, doi:10.1016/j.jbusres.2017.12.022
43. Pathak, D., Joshi, G. (2021). Impact of psychological capital and life satisfaction on organisational resilience during COVID-19: Indian tourism insights. *Current Issues in Tourism*, Vol. 24(17), pp. 2398-2415.

44. Păunescu, C., Mátyus, E. (2020). Resilience measures to dealing with the COVID-19 pandemic: Evidence from Romanian micro and small enterprises. *Management & Marketing, Vol. 15(s1)*, pp. 439-457, doi:10.2478/mmcks-2020-0026
45. Pavez, I., Gomez, H., Laulie, L., Gonzalez, V.A. (2021), Project Team Resilience: The Effect of Group Potency and Interpersonal Trust. *International Journal of Project Management, Vol. 39(6)*, pp. 697-708, doi:10.1016/j.ijproman.2021.06.004
46. Podsakoff, P.M., MacKenzie, S.B., Podsakoff, N.P. (2016). Recommendations for Creating Better Concept Definitions in the Organizational, Behavioral, and Social Sciences. *Organizational Research Methods, Vol. 19(2)*, pp. 159-203. doi:10.1177/1094428115624965
47. Reinmoeller, P., Van Baardwijk, N. (2005). The link between diversity and resilience. *MIT Sloan Management Review, Vol. 46(4)*, pp. 61-65.
48. Romanowska, M. (2012). *Przedsiębiorstwo odporne na kryzys*. Warszawa: Oficyna Wydawnicza SGH.
49. Rubakha, M., Tkachyk, L., Pryimak, I. (2024). Factor analysis of financial performance and formation of strategic resilience in Ukrainian IT companies under the challenges of war. *Financial and Credit Activity: Problems of Theory and Practice, Vol. 1(54)*, pp. 260-281, doi:10.55643/fcaptop.1.54.2024.4229
50. Rzegocki, M. (2021). *Prężność organizacyjna jako zasób kluczowy dla odporności organizacji na kryzys*. Warszawa: WSIZ.
51. Sahebjamnia, N., Torabi, S.A., Mansouri, S.A. (2018). Building Organizational Resilience in the Face of Multiple Disruptions. *International Journal of Production Economics, Vol. 197*, pp. 63-83, doi:10.1016/j.ijpe.2017.12.009
52. Sajko, M., Boone, C., Buyl, T. (2020). CEO greed, corporate social responsibility, and organizational resilience to systemic shocks. *Journal of Management, Vol. 47, No. 4*, doi:10.1177/0149206320902528
53. Samborski, A. (2022). Resilience of Polish Non-financial Corporations Under Economic Shocks. *Scientific Papers of Silesian University of Technology. Organization and Management, Series, No. 163*, pp. 505-519, doi:10.29119/1641-3466.2022.163.31
54. Scherbaum, C., Meade, A. (2013). New directions for measurement in management research. *International Journal of Management Reviews, Vol. 15(2)*, pp. 132-148, doi:10.1111/ijmr.12003
55. Searing, E.A.M., Wiley, K.K., Young, S.L. (2021). Resiliency tactics during financial crisis: The nonprofit resiliency framework. *Nonprofit Management & Leadership, Vol. 32, Iss. 2*, pp. 179-196, doi:10.1002/nml.21478
56. Sevilla, J., Ruiz-Martín, C., Nebro, J.J., López-Paredes, A. (2023). Why can organizational resilience not be measured? *Journal of Business Economics and Management, 24(2)*, pp. 199-220, doi:10.3846/jbem.2023.18819

57. Shela, V., Ramayah, T., Noor Hazlina, A. (2023). Human capital and organisational resilience in the context of manufacturing: A systematic literature review. *Journal of Intellectual Capital*, Vol. 24(2), pp. 535-559, doi:10.1108/JIC-09-2021-0234
58. Stephenson, A. (2010). *Benchmarking the Resilience of Organizations*. Ph.D. thesis, Christchurch.
59. Stephenson, A., Seville, E., Vargo, J., Roger, D. (2010). *Benchmark Resilience: A study of the resilience of organisations in the Auckland Region*. <https://resorgs.org.nz/wp-content/uploads/2017/07/benchmark-resilience-resorgs-research-reportb.pdf>
60. Torres, A.P., Marshall, M.I., Sydnor, S. (2019). Does social capital pay off? The case of small business resilience after Hurricane Katrina. *Journal of Contingencies and Crisis Management*, Vol. 27, No. 2, pp. 168-181, doi:10.1111/1468-5973.12248
61. Troise, C., Corvello, V., Ghobadian, A., O'Regan, N. (2022). How can SMEs successfully navigate VUCA environment: The role of agility in the digital transformation era. *Technological Forecasting and Social Change*, Vol. 174, doi:10.1016/j.techfore.2021.121227
62. Weick, K.E., Roberts, K.H. (1993). Collective Mind in Organizations: Heedful Interrelating on Flight Decks. *Administrative Science Quarterly*, Vol. 38, pp. 357-381, doi:10.2307/2393372
63. Weick, K.E. (1993). The Collapse of Sensemaking in Organizations: The Mann Gulch Disaster. *Administrative Science Quarterly*, Vol. 38, pp. 628-652, doi:10.2307/2393339
64. Williams, T.A., Gruber, D.A., Sutcliffe, K.M., Zhao, E.Y. et al. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *The Academy of Management Annals*, Vol. 11(2), pp. 733-769, doi:10.5465/annals.2015.0134
65. Yao, Y., Fabbe-Costes, N. (2018). Can you measure resilience if you are unable to define it? The analysis of Supply Network Resilience. *Supply Chain Forum: An International Journal*, Vol. 19(4), pp. 255-265, doi:10.1080/16258312.2018.1540248