

## ORGANISATIONAL RESILIENCE OF STARTUPS IN THE FACE OF CHALLENGES IN THE BUSINESS ENVIRONMENT IN POLAND

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**Purpose:** The purpose of this article is to explore the concept of organisational resilience, to profile Polish startups and to identify and analyse factors influencing their resilience in the face of changing market conditions, with a particular focus on those that determine their ability to overcome crises; and to draw conclusions on how these young companies can prepare for possible changes and challenges in the environment.

**Methodology:** The study was conducted using desk research and field research methods, which included a literature review, statistical analysis and a questionnaire interview method.

**Findings:** the study found that the key factors influencing the resilience of startups are organisational flexibility, rapid decision-making, management commitment and effective risk management. Startups that manifest these characteristics have a greater ability to adapt and survive in the face of crises. Strategies such as optimising costs, developing offerings and attracting diverse sources of funding have also proven to be important.

**Research limitations/implications:** The study was limited in scope due to the small research sample, limited to six startups, hence the research can be described as a pilot study and the results obtained can serve as hypotheses in future research on a larger sample of respondents using a variety of analytical tools.

**Practical implications:** Research findings suggest that Polish startups should invest in the development of flexible management structures and risk management strategies, which may increase their chances of survival and growth in a volatile market environment. Applying the research findings may help startups to be better prepared for potential crises.

**Social implications:** Promoting the organisational resilience of startups can increase the stability of the startup sector in Poland, which can have a positive impact on the economy and create new jobs.

**Originality/value:** The article brings a new perspective on organisational resilience factors in the context of Polish startups. The paper is addressed to management researchers and practitioners who are interested in the topic of startups, and to startup leaders looking for effective strategies to cope with market challenges.

**Keywords:** organisational resilience, Polish startups, adaptability in a crisis, startup resilience.

**Category of the paper:** Research paper, Case study.

## 1. Introduction

Today's business environment, characterised by dynamic change and unpredictable challenges, requires organisations to be flexible and adaptable. Startups in particular, as young and innovative enterprises, face unique difficulties that may threaten their survival and growth. In the context of these challenges, organisational resilience, understood as the ability of an organisation to survive, adapt and grow in the face of crises, becomes a key issue.

**The purpose of** this study is to identify and analyse factors influencing the resilience of startups in the face of changing market conditions, with a particular focus on those that determine their ability to overcome crises. A key **research problem** is therefore to identify which factors influence the organisational resilience of startups and which strategies to manage these factors contribute to successfully overcoming crises and business barriers. To explore the topic in more depth, a literature study was made and personal interviews were conducted with respondents on the practices of startups in Poland. Six cases of startups that experienced a crisis were analysed, which provided an opportunity to try to draw conclusions about effective strategies for operating in difficult conditions at the early stages of company development. In addition, the theoretical aspects of resilience based on the literature on the subject were examined and the profile of Polish startups in light of statistical data was shown in order to better understand the topic.

## 2. The concept of organisational resilience in the literature

The term '**resilience**' was first introduced by C.S. Holling, who presents the viewpoints of 'resilience' and 'stability' in his work 'Resilience and Stability of Ecological Systems' (Holling, 1973). Holling introduces **the concept of resilience** as the ability of an ecosystem to maintain its functions and structure in the face of change, and presents it as an active process associated with response, as well as a feature of change and adaptation. The work has formed **the basis for further research** on ecological resilience, but also on other different forms of resilience.

Communities and organisations are recognised as complex systems (Crichton et al., 2009). These systems are evolutionary, responsive to information and capable of self-organisation. (Andriani, 2003). In order to maintain its functions and stay ahead in an ever-changing environment capable of significant fluctuations, an organisational system must adapt and change. Without such an approach, in the face of difficult situations, guided solely by **a strategy based on return to the original state**, an individual may move into a developmental cycle unfavourable to adaptation. Crisis **resilience approaches**, on the other hand, can help an organisation to adapt to new environments and risks, providing a basis for managing

changing and uncertain environmental factors more effectively. **Adaptation**, in this case, refers to an organisation's response to disruptive and threatening situations, and its ability to restore normal functions. **Developing resilience** creates a dynamic adaptation process that takes into account the non-linear and complex relationships within an organisation's response. K.M. Sutcliffe and T.J. Vogus note that resilience refers to an organisation's ability to recognise threats, adapt to them, develop the ability to bounce back, and successfully restore its functions (Sutcliffe, Vogus, 2003). In effect, organisational resilience is a comprehensive concept, addressing the functioning of an organisation before, during and after an incident.

A universal and relatively comprehensive approach to the resilience category is presented in **ISO 22316:2017** - 'Security and resilience - Organisational resilience - Principles and attributes'. It is noted that the resilience of an organisation is its ability to absorb and adapt in a changing environment. Furthermore, **resilience is a multidimensional category**, influenced by strategic and operational factors.

Organisational resilience:

- a) It intensifies when behaviour is in line with a shared vision and goal,
- b) It is based on an up-to-date understanding of the organisation's context,
- c) It is based on the ability to absorb, adapt and respond effectively to change,
- d) It is based on good governance,
- e) It is supported by diverse skills, leadership, knowledge and experience,
- f) It is strengthened by coordination between management disciplines and input from technical and scientific areas of expertise,
- g) Relies on effective risk management (ISO, 2017).

Organisational resilience is regarded as **one of the fundamental factors** that shapes development and can be related to the measurement of activities in an entity at different levels of management (Tarapata, Woźniak, 2022). A. Zablocka-Kluczka believes that organisational resilience is a certain property that enables an organisation to **survive and develop sustainably**. On the one hand, it builds the organisation's insensitivity and invulnerability to the impact of crisis factors, while on the other hand, it builds the ability to resist the impact of crisis factors (Zablocka-Kluczka, 2012). This definition indicates that the resilience of an organisation can result from two basic attitudes of the owners, managers, lower level employees in the organisation: **a passive** attitude, which consists in avoiding threats and adapting to the changes that have arisen, and **a proactive** attitude, which consists in planned and conscious intervention in the environment to ensure the organisation's proper operating conditions and security (Tarapata, Woźniak, 2022).

M. Majchrzak notes that securing resilience should integrate an organisation's interior, its resources with external environments and **two dimensions - strategic and operational** (Majchrzak, 2020). A similar approach is presented by D. de Moura, P.A. Tomei, R. Martin-Rojas and R.G. Sánchez, who distinguish **four** levels in their model of levels of securing organisational resilience: the environmental dimension, the organisational behaviour

dimension, the individual employee behaviour dimension and the organisational practices dimension (de Moura et al., 2021). Other current approaches to defining organisational resilience are presented in Table 1.

**Table 1.**  
*Current approaches to the definition of resilience*

Author	Definition
Hillmann, Guenther (2021)	Organisational resilience can be seen as, among other things, the ability to act, the outcome of an action, a process, the behaviour of an organisation and its employees, a strategy or a specific type of performance
Kahn et al. (2018)	Organisational resilience is the ability to absorb stresses and maintain or improve performance despite adversity
Välikangas, Romme (2012)	Organisational resilience is the sum of partial resilience, which has both strategic and operational dimensions
Sun et al. (2011)	Organisational resilience is a process that links an organisation's set of adaptive capabilities to a positive trajectory of entrepreneurial functioning after a crisis, disruption or challenge
Bishop, Hydoski (2010)	Organisational resilience is the ability of an organisation to return to the state it was in before the stressor/threat occurred

Source: own study based on: Tarapata, Woźniak, 2022, p. 12.

**Building flexibility and resilience** in an organisational structure can take place in different subject dimensions. Table 2 shows examples of the dimensions of ensuring organisational resilience.

**Table 2.**  
*Examples of dimensions of ensuring organisational resilience*

Author	Dimensions
Kerr (2022)	Operations management, supply chains, information flow, human resources, products, business processes
De Moura, Tomei, Martin - Rojas, Sanchez (2021)	Risk management, vulnerability management, learning capability, change management, forecasting, proactive search for resources, financial management
Ahmed, Kilika, Gakenia (2021)	Positive adaptation and organisational flexibility, risk management, planning and forecasting, organisational crisis management
Wang, Müller, Zhu, Yang (2021)	Business process complexity, risk management, social impact (external stakeholders), collective attentiveness (action awareness)
Goat - Nadolna, Beyer (2021)	Information and decision-making processes, economic factors, organisational factors, social factors, personal factors
Varkoly, Jedrzejczyk, Kucęba, Kulej-Dudek (2019)	Portfolio of business competencies (soft and hard), employee training, decision-making processes, creativity, leadership
Jedrzejczyk (2016)	Managerial behaviour, organisational culture, work organisation, managerial errors

Source: own study based on: Tarapata, Woźniak, 2022, p. 16.

Analysing the dimensions presented, it can be deduced that they relate to both processes and resources and form a relatively complete picture of the factors that determine an organisation's resilience. Each organisation should individually identify **the key dimensions** that influence the development and shaping of its resilience, taking into account, among other things: industry specifics, market dynamics, complexity of business processes or internal

structures, business model, leadership style. The more accurate the identification of dimensions, the easier it will be to define measures of resilience (Tarapata, Woźniak, 2022, p. 15).

Summarising all the aspects discussed, it can be concluded that organisational resilience is **a multifaceted and comprehensive concept** that has a significant impact on the overall state of the business. Therefore, in today's reality, it is crucial to consciously design mechanisms to strengthen this resilience, treating it as an essential 'tool' for ensuring the stability of a given business entity.

### 3. Profile of Polish startups in light of statistical data

Initially, **the term startup** referred to all market-entry, new business entities, but over time the name has come to refer to a specific group of ventures that are associated with a growing sector of the economy based on communication and information technologies. It is expected that with the development of startups, **innovation** increases and the economy grows at a rapid pace, especially in developed countries.

The Polish Agency for Enterprise Development - **PARP** - defines a **startup in 2024** as "a dynamic, usually young company or project that aims to introduce an innovative product, service or solution to the market, seeking a business model that would ensure its profitable development. It is characterised by a high degree of flexibility and adaptability, often operating under conditions of high uncertainty." The characteristics that, according to PARP, characterise startups are (PARP, 2024a):

- Short operating history (up to 5-10 years).
- Innovation.
- Scalability.
- Higher risk than 'traditional' ventures, but also higher return on investment in case of success.

There are individual approaches to defining a startup **in the national and international literature**. Table 3 provides a summary of the main characteristics of a startup according to different authors.

**Table 3.**

*Key features of a startup according to various authors*

Author	Key features of a start-up
Blank (2013)	Temporary organisation looking for a scalable, repeatable and profitable business model. Relentless pursuit of defining a business model, continually testing business hypotheses in practice
McClure (2013)	Entities that are uncertain about who their customer is, what their product is and what their optimal revenue model is - i.e. they take a lot of market risk

Cont. table 3.

Thiel, Masters (2014)	An organisation that creates new solutions
Damodaran (2009)	Organisation with high growth potential at an early stage of development, no history, dependent on sources of capital, low survival rate
Glinka, Piaseczny (2015)	An emerging organisation that is defining and testing its business assumptions
Bursiak (2013)	Organisations in the early stages of development (up to 5 years) using external funding
Wasserman (2012)	An entity that follows a market opportunity regardless of its resources

Source: own study based on: Skala, 2017, p. 36.

When considering the definition of a startup, it is also worth considering **what a startup is not**. Taking into account the definition of S. Blank, it can be deduced that a startup will not be a company that uses a proven business model to reduce the risk of failure to a minimum. A startup will not be a company in a franchise system or any other form of traditional trade. The above conditions necessitate that some form of innovation be implemented that would make the answers to the questions proposed by D. McClure: "what is the product?", "who is the customer?", "how to make money from it?" uncertain and requiring confrontation with the market.

A. Skala (Skala, 2017) proposed **a diagram for the development of a startup**, pointing out the factors that determine its growth (Figure 1).

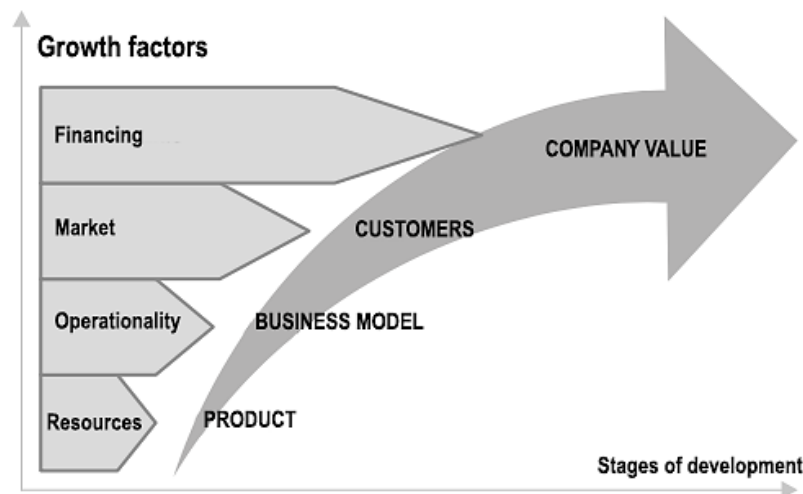


Figure 1: Diagram of a startups development and growth drivers.

Source: Skala, 2017, p. 36.

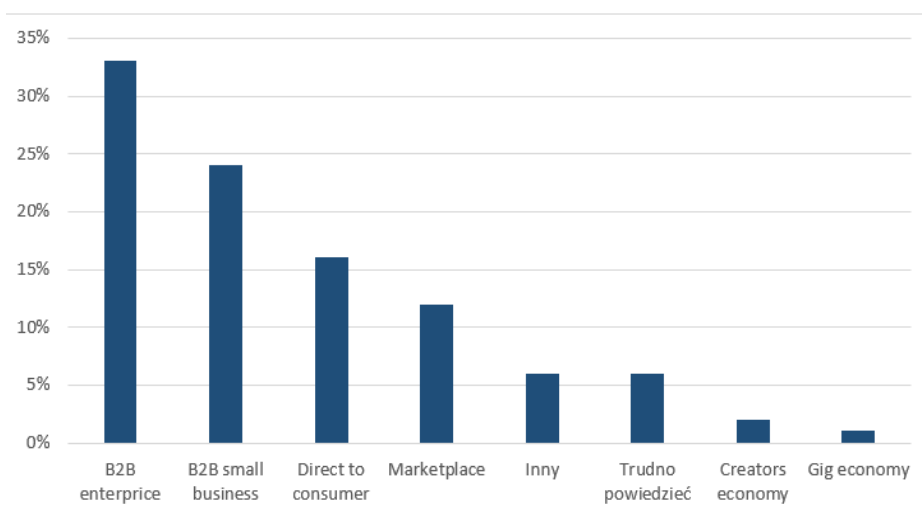
According to the Failory website, **9 out of 10 newly created startups fail**, 20% of them go out of business within one year and another 50% do not survive more than five years. Lack of funding, the actions of competitors and lack of market demand for the product or service are the most frequently cited reasons for business closure (Kotashev, 2024).

The Startup Poland Foundation has prepared **the report "Polish Startups 2023"**, for which it developed and conducted an online survey using the SurveyLab tool. The research was carried out between 4 July and 4 September 2023 with the participation of 4841 respondents,

the majority of whom are startup founders, with a small share of people employed at startups who are not founders. The selection of respondents was random, with no indication of preferred industries, business scales, sizes by employment, or development phases.

According to the report, the **largest number of startups in Poland have been operating for 3 to 4 years** - as many as 31%, 28% of startups have been operating for 1 to 2 years and 23% of startups have been operating for less than a year. Those operating for longer - over 5 years - are 15%. The remaining 3% are startups operating for more than 10 years (Startup Poland, 2023). The regions with the highest number of registered startups are the Dolnośląskie and Mazowieckie voivodships.

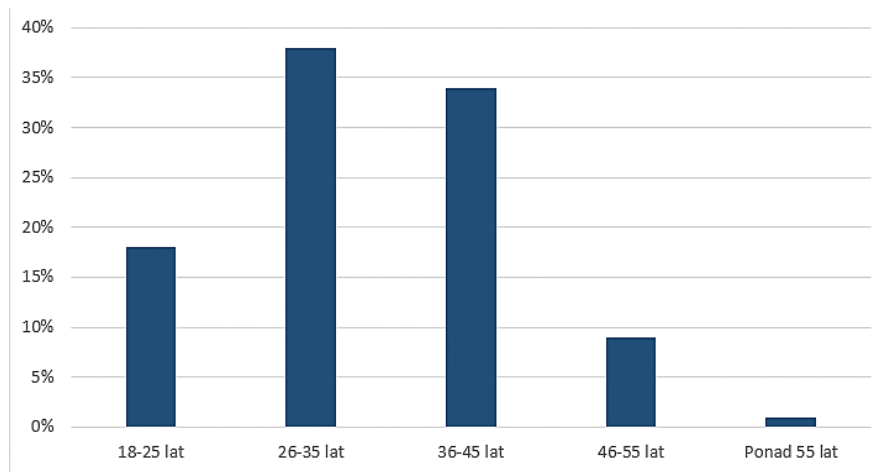
Respondents were also asked what **business model** the young innovative companies operate under, the results of which are shown in Figure 2. One of the most common responses was "B2B entrepreneur", meaning that Polish companies target large companies. The next most common answer was 'B2B small business', meaning that they direct their product or service to small companies. Only in third place was the answer 'Direct to consumer', i.e. (B2C) - a business model aimed directly at the customer. The structure of the Polish startup sector, in terms of preferred business models, has remained unchanged in recent years.



**Figure 2.** Business models in which Polish startups operate.

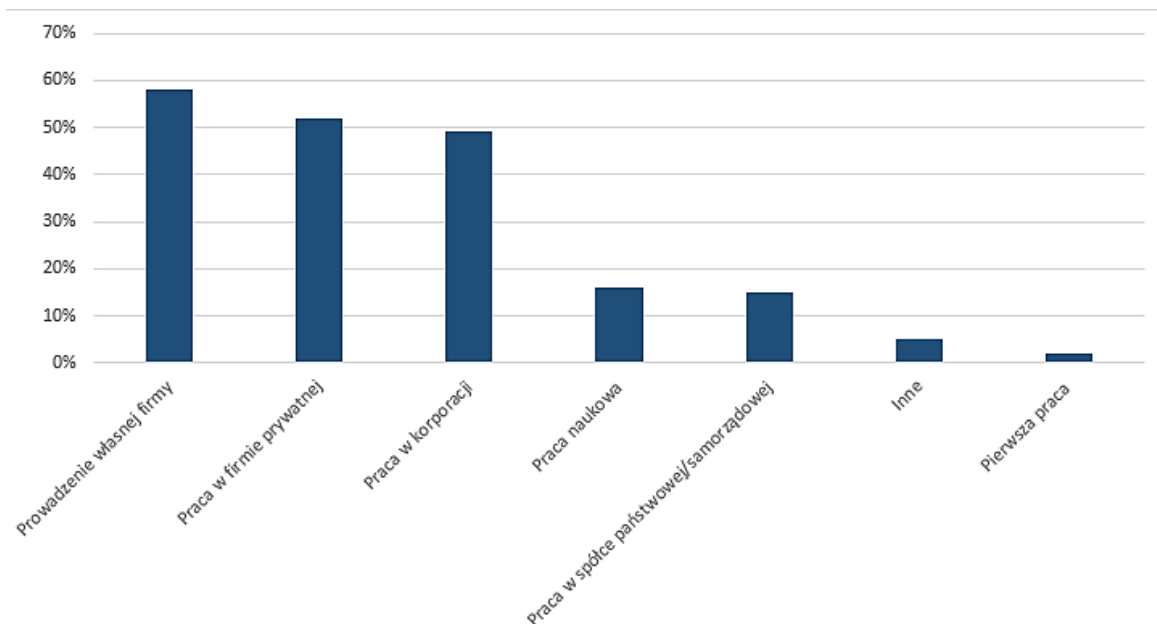
Source: own elaboration based on: Startup Poland: Polskie startupy 2023 (2023). Warszawa: Startup Poland, p. 34.

It is a common misconception that **founders** tend to be very young people, while the thought of founding a startup is more common among people over the age of 26. Startups are usually chosen by people with previous work experience, e.g. in corporations, other private companies or who have previously run their own company. The age and previous experience of founders before founding a startup are shown in the graphs in Figure 3 and Figure 4.



**Figure 3.** Age of founders at startup founding.

Source: own elaboration based on: Startup Poland: Polskie startupy 2023 (2023). Warszawa: Startup Poland, p. 37.



**Figure 4.** Previous work experience of founders.

Source: own elaboration based on: Startup Poland: Polskie startupy 2023 (2023). Warszawa: Startup Poland, p. 37.

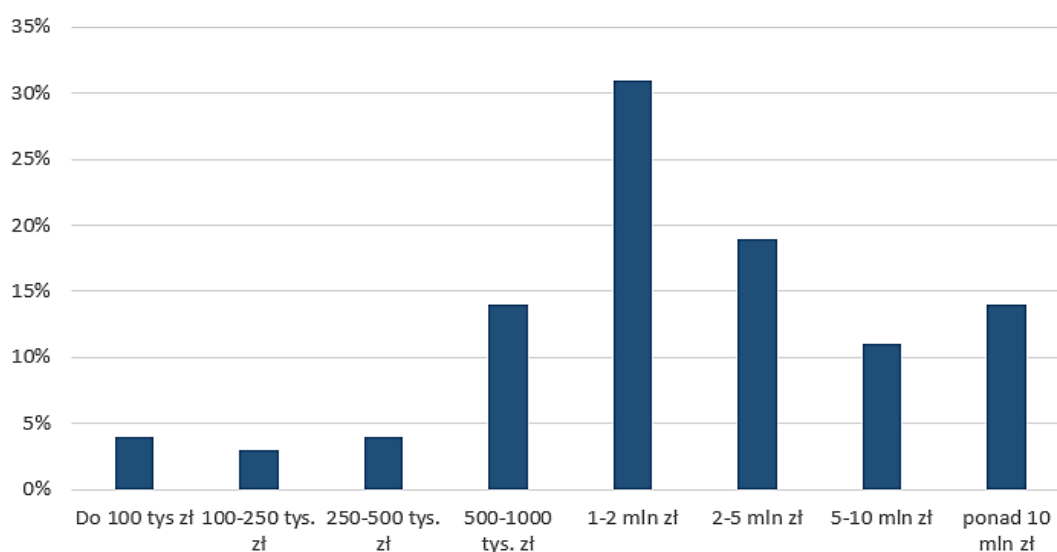
**A limited liability company is the most common form of business chosen** by Polish startups. As many as 67% of respondents declared this legal status. First of all, a limited liability company is relatively easy to set up and does not require a large share capital. Owners of a limited liability company only risk up to the amount of the share capital contributed, unlike a sole proprietorship (which was chosen by 10% of respondents). This reduction in risk is particularly important for startups that operate in an environment characterised by high unpredictability and risk. With this solution, entrepreneurs can undertake innovative projects without fear of losing their assets if the business fails.



Most Polish startups operate as **small teams**, usually consisting of a few or a dozen people, according to the latest data from the Startup Poland Foundation. More than a third of these companies, 34%, employ between four and 10 employees, and almost one in five (19%) employs three people on a permanent basis.

Analysing **revenue models**, most young companies manage to make money through sales (e.g. products, services). The second popular form that generates revenue is licensing (rights to use a product or technology). In third place is business intermediation (Startup Poland, 2023).

According to the 'Global Entrepreneurship Monitor Poland 2023 Report', government grants, subsidies and programmes proved to be an important **source of funding** for 40% of startups. According to the "Polish Startups 2023" report 23% of startups benefited from NCBR (National Research and Development Centre) funding, 16% from PARP (Polish Agency for Enterprise Development) and 8% from PFR (Polish Development Fund) (PARP, 2024b). However, most startups also use their own funds - 76%. In terms of the amounts that Polish startups have managed to raise in all their attempts to obtain funding, 31% have managed to raise PLN 1-2 million, 19% have managed to raise PLN 2-5 million, while 14% have managed to raise between PLN 500 thousand and PLN 1 million and another 14% over PLN 10 million, as presented in Figure 5.



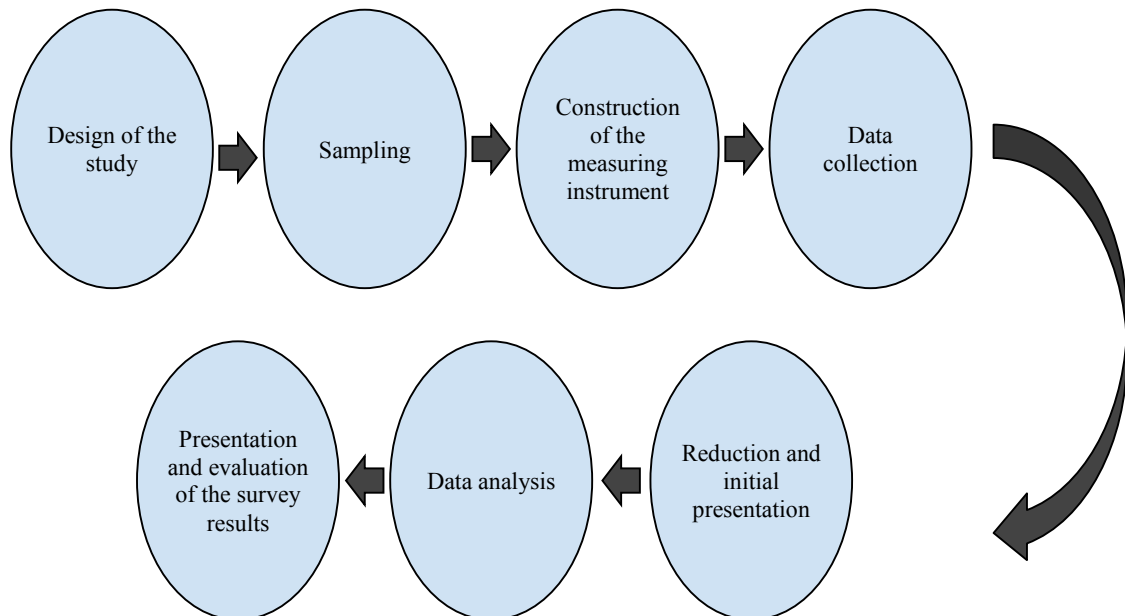
**Figure 5.** Total funding from all funding attempts.

Source: own elaboration based on: Startup Poland: Polskie startupy 2023 (2023). Fundacja Startup Poland, Warszawa, p. 79.

**Key factors for the success of startups**, especially self-funded ones, are the creation of products that meet real customer needs and a niche strategy. The product must be targeted at a group that is able to pay for it. An important element that differentiates startups in a competitive market is the focus on a narrow audience, which increases the chances of success. Flexibility, specialisation and rapid validation of the product on the market are key in the startup's development process. These activities allow the offer to be better tailored to customer needs and avoid creating unnecessary products (Ząbek, 2023).

#### 4. Research methodology

The marketing research process proposed by S. Kaczmarczyk is characterised by its universality and can be adapted to different research areas (Kaczmarczyk, 2002). The stages of the research process are shown in Fig. 6.



**Figure 6.** The marketing research process according to S. Kaczmarczyk.

Source: own elaboration based on: Kaczmarczyk, 2002, p .34.

S. Kaczmarczyk proposed and described in detail the methods that could be applied at each stage of the study and what the result should be at each stage. On the basis of the application and adaptation of this methodology, the process of the study course assumed:

- definition of the research problem,
- identification of the study population and the research unit,
- selection of the sample to be tested, choice of measurement forms and construction of the measuring instrument,
- selection of data analysis methods and their analysis,
- evaluation and presentation of data,
- development of research conclusions.

**The research problem** focuses on two key questions:

1. What factors influence the organisational resilience of startups in the face of changing market conditions?
2. What strategies for managing these factors contribute to successfully overcoming crises and barriers in their operations?

**The study population** consists of startups operating in Poland in a dynamic business environment. The basic **research units** are young enterprises meeting a criterion such as the experience of at least one crisis. In order to carry out the research process, without having a budget for the research project, the units that were easiest to reach were selected for the **sample**. A non-random sample (discretionary sample) was used, focusing on startups that met the required criteria and with whom direct contact could be made. The selection process also included scheduling interviews with representatives of the selected entities. **The form of measurement** is a primary, face-to-face survey, in the form of a personal interview with management representatives of the selected units.

A standardised interview - an interview questionnaire - **was chosen as the measuring instrument**. The essence of measurement is to ask questions that are addressed to the respondent and that directly intervene in consciousness, stimulating the respondent to respond. So, the way the questions are constructed and the types of questions have a strong influence on the results of the survey. The construction of the questionnaire was a study in itself, starting with the purpose of the study, determining the number and order of the questions and assessing their relevance, selecting the appropriate words, consulting experts, constructing a sample questionnaire and a trial measurement, and then modifying it as a result of logical analysis and, finally, developing the final version of the questionnaire. The conducted study involved open-ended questions, and no scaling of responses was used. The questionnaire contained 15 questions.

**Data analysis** is a key step for the correct processing and interpretation of the results obtained from the research, especially when the data are qualitative and derived from open-ended responses from respondents. Due to the nature of the research conducted, where the focus was on understanding and interpreting the subjective experiences and responses of companies, two main methods of data analysis were considered: thematic analysis and content analysis (Zaveri, 2023). Content analysis methods are more appropriate for quantitative research, so thematic analysis was chosen for the case of qualitative research. In this approach, recurring themes, patterns and meaning of the data are identified and analysed using an interpretive method. It focuses on the experiences and perspectives of participants to gain a deeper understanding of them. The thematic analysis process is flexible and iterative, enabling detailed exploration of subjective experiences and nuanced meanings in respondents' responses.

An analysis of the research results is presented later in this article. However, their evaluation - relevance, compliance, acceptance - is discussed in the "Discussion" section.

## 5. Analysis of the survey results

### 5.1. Research questions and characteristics of respondents

The survey focused on two **key questions**:

1. What factors influence the organisational resilience of startups in the face of changing market conditions?
2. What strategies for managing these factors contribute to successfully overcoming crises and barriers in their operations?

In an effort to understand the mechanisms for building organisational resilience in startups, **specific research questions** were posed:

1. What factors influence the organisational resilience of startups in dynamic market changes?
2. What strategies for managing the drivers of organisational resilience are most commonly used by startups?
3. How are startups adapting to changing market conditions?
4. What specific actions taken by startups contribute to successfully overcoming crises?
5. What are the best practices for managing organisational resilience that can be applied by startups in a dynamic market environment?
6. What inhibitors to effective organisational resilience management might exist in startups?
7. How do the experiences and decisions of managers affect the ability of startups to successfully deal with crises?

**Six** respondents took part in the survey. Below are **the characteristics of the respondents** and **the characteristics of the companies** they work for:

**Role in the startup.** One respondent is a co-shareholder and serves as CEO. Another respondent is also a shareholder. A third person is in charge of project coordination, optimising the user experience and creating concepts and strategies for operations. A fourth respondent acts as project coordinator and subscriber specialist. The fifth participant is an advisor and managing director. The last respondent is a development and marketing director.

**Legal form.** Six respondents took part in the survey, four of whom work in limited liability companies, one in a foundation and one in a simple joint stock company.

**Enterprise size.** The enterprises analysed comprised a variety of units by size classification: two were classified as micro-enterprises, two as small and two as medium-sized.

**Age of the enterprise.** With regard to the age of the companies analysed, one has been in operation for 2 to less than 3 years, one for 4 to less than 5 years, two for 3 to less than 4 years and two have 5 to less than 10 years.

**Industry.** The companies participating in the survey represented a variety of industries, including: one company from industry, one from agriculture, two from media, one from commerce and one from financial services.

**Sources of funding for capital expenditure.** In terms of sources of financing for capital expenditure, three companies use their own funds, two use EU subsidies and one finances investments through bank loans and credits.

**Credit ownership.** In terms of credit holdings, five companies have no credit commitments, while one company has a credit of between 1 and 3 years.

**Area of operations.** With regard to areas of activity, four companies operate exclusively in Poland, one operates in both Poland and the European Union, and one operates in multiple countries around the world.

**The main products or services offered by the startup.** Six startups from different industries took part in the survey. The first one produces hemp blocks for the construction of single-family houses, offering eco-friendly solutions. The second startup provides hemp cultivation services, including modern harvesting and processing technologies. Another entrant is a company that creates interactive multimedia content, engaging users through articles and analytics, using artificial intelligence to personalise the experience. Another podcasting startup enables interactive radio programmes, allowing listeners to actively participate. Another startup markets cutting-edge cosmetics, and the last offers flexible financial solutions such as loans and factoring, which are based on modern risk assessment algorithms.

**Respondents' professional experience.** In terms of the respondents' professional experience, one has 15 years of experience in startups, another has 10 years, a third has five years, a fourth has four years and two have two years of experience in the industry each.

## 5.2. Analysis of respondents' answers

The interview started with question 1:

*Please tell us about a situation when the company has had experience with some major crisis or difficulty that has had a particularly large impact on the business.*

Each respondent presented a different situation. The responses are shown in Tab. 4.

**Table 4.**  
*Respondents' answers to question 1*

Respondents	Answers
Respondent 1	"One of the most serious crises we faced was the <b>lack of funding for one of our production lines</b> . Although we received financial support, it turned out that we lacked the funds to purchase a machine to dry the hemp blocks, which made it significantly more difficult for us to continue production".
Respondent 2	"We experienced a major crisis when the change in power <b>reduced the need for support from existing clients</b> , as public media returned to its previous state. As a result, interest from our existing donors decreased".
Respondent 3	"One of the biggest challenges we faced was opening our first stationary shop. The site was generating significant costs, especially as operating during the period of trading Sundays generated the highest turnover. Unfortunately, regulatory changes and long-term leases meant

	that the cost of doing business increased significantly. Additionally, the COVID-19 pandemic and increasing competition in the form of chains marketing cosmetics to other companies exacerbated the difficulties. Instead of focusing on developing e-commerce, <b>we became too involved in developing stationary shops</b> , which proved to be the wrong decision".
Respondent 4	"The biggest challenge we faced was <b>a major conflict between partners</b> , which led to decision-making paralysis and halted further company activities. This situation put the future of our startup in question and required urgent action to prevent the business from coming to a complete halt".
Respondent 5	"Our main problem has been <b>a decline in contributions and reduced funding</b> , which has had a significant impact on the business".
Respondent 6	"Our company faced a <b>serious financial challenge</b> due to the rapid growth rate. Despite a strong team of specialists and a refined product, we lacked the resources to further support our customers. At the time, the sector in which we operated was struggling with an unfavourable image, which further caused problems for our partners. This significantly limited our ability to raise funds for growth. As a result, we focused on seeking investment support, as bank financing proved unattainable".

Source: own elaboration based on interviews conducted.

*An analysis of the responses to Question 1* Crisis experience, presented in Table 4, reveals several significant challenges that had a significant impact on companies' operations. Respondents highlighted that the lack of adequate financial resources often hindered the continuation of operations and the implementation of plans. Other significant difficulties included a reduction in interest from existing customers, either as a result of changes in the market environment or a shift in power. There were also internal conflicts, such as occasional problems between partners, which affected the companies' operations, paralysing decision-making processes and holding back further development. One respondent also indicated that regulatory changes, including new trade regulations, had increased operating costs and complicated the processes involved in hiring and running a business. These changes, combined with pandemonium and increasing competition, have contributed to the difficulty of maintaining profitability.

Respondents were then asked question 2:

*What strategies were used to overcome these crises/difficulties?*

*Analysis of the responses to question 2.* Several key common points can be identified that emerged in the various responses of the respondents. **Cost optimisation and increased profitability** can be singled out as the first strategy. Respondent 3 indicated that the company focused on improving financial performance by reducing operating costs and reducing its presence in expensive locations. Similarly, Respondent 6 indicated a focus on increasing the profitability of its lending and reducing risks, which allowed the company to better manage its finances. **Seeking funding** can be mentioned as another strategy. The startup concerning respondent 1 decided to issue shares through a brokerage house as a way to raise additional funds. The startup concerning respondent 6, on the other hand, undertook intensive efforts to raise financing, both domestic and foreign. Respondents also pointed to **the development of their offering and distribution channels**. Respondent 2's company expanded its offering and distribution channels by introducing new content formats, such as podcasts, to attract new audiences. Respondent 5's company, on the other hand, focused on increasing engagement

through the development of a mobile app and increased marketing activities. Respondent 4 pointed to **effective team and resource management**. The startup had made management changes, reducing the involvement of individuals in certain areas and delegating tasks to substitutes, which helped to adapt to changing conditions.

Question 3 to respondents:

*Please describe what factors had the greatest impact on the company's ability to adapt and maintain resilience in these situations.*

*Analysis of the responses to Question 3.* The question reveals several key aspects that were important to respondents:

- good management,
- agility and flexibility through in-house solutions,
- rapid decision-making,
- commitment of owners,
- constructive discussions,
- teamwork,
- brand recognition,
- image,
- analytical skills.

Respondent 1 indicated that a good management team and experienced investment advisors with knowledge of fundraising opportunities played a key role in the company's adaptability. Respondent 2 highlighted that organisational flexibility and agility, resulting from the ability to implement solutions internally, were key to the company's adaptability. Through close collaboration and rapid exchange of ideas, the startup was able to implement new solutions quickly. Respondent 3 pointed out that rapid decision-making and direct involvement of the owners enabled the startup to respond effectively to changing market conditions. Respondent 4 noted that constructive discussions and suggestions for action within the team were key, although their effectiveness did not always meet expectations. Respondent 5 highlighted that strong brand recognition and positive audience sentiment were important for the company's adaptation and resilience. Respondent 6 noted that the team's analytical skills and competence in risk management were important for assessing situations and taking effective action in response to challenges.

Respondents were then asked to answer question 4:

*Please tell us about specific actions and initiatives your company is implementing or considering to adapt to new market conditions and maintain its organisational resilience.*

*Analysis of the answers to question 4* Several key strategies mentioned by respondents can be distinguished:

- employment of qualified specialists,
- development of product offerings and new channels,

- increase owner involvement,
- negotiations with business partners,
- new product development,
- intensification of marketing activities,
- focus on profitable customers,

The remainder of the interview covered the topics in questions 5, 6, 7 and 8 in turn:

*How did the team respond to difficult situations and what practices were adopted?*

*What team activities have had the greatest impact on building organisational resilience?*

*What lessons have you learned from the crisis experience?*

*How have these lessons translated into the company's strategy and operations in the long term?*

*Analysis of the answers to questions 5, 6, 7, 8.* Respondents described different **reactions of teams to difficult situations**. In some cases, managers made structural changes and assigned specific areas of responsibility, as there were sometimes disagreements within teams due to different opinions on solutions. At times, when faced with difficulties, teams experienced feelings of powerlessness and grief, leading to reduced contact between team members. There were instances of the team feeling stressed and uncertain about the future of the company. However, leaders tried to keep employees informed and reassure them that there were no planned staff cuts, focusing instead on optimising tools and processes to build a sense of security. In other cases, teams introduced regular meetings to monitor the situation on an ongoing basis and quickly adjust strategy. Sometimes, too, teams showed confidence by creating new products and maintaining open communication and a full understanding of the situation. Actions such as introducing and maintaining high quality internal communication to keep the situation under review and quickly adjust strategy played an important role in **building organisational resilience**. Respondents also highlighted the importance of involving the team and leaders in solving problems and maintaining trust and common purpose. Respondents identified several key **lessons learned from the crisis experience**. These included the need for thoughtful selection of co-founders and alignment of the governance structure, as well as the importance of marketing continuity and financial transparency. Other important lessons included flexibility in strategy adaptation and the importance of preparing for potential crises by developing contingency scenarios. Lessons learned from the crises have had a significant impact on companies' strategies and operations. Changes in management and organisational structures, improved communication with stakeholders, and a focus on flexibility and securing financing were key to long-term adaptation and growth.

After being confronted with a difficulty or crisis, companies may be more aware of the risks, so respondents were asked questions 9, 10 in turn:

*Please list examples of best practices that your company is using or considering to increase its resilience to market changes.*



*What measures are you taking in your company to build organisational resilience to future crises?*

*Analysis of responses to questions 9, 10* In the context of the analysis of respondents' answers to the first two questions, **a variety of strategies and approaches** emerge that can be considered key to ensuring resilience in the face of unpredictable events. Among the most frequently mentioned actions that companies implement were human resources initiatives, such as hiring qualified professionals with the right competencies and experience. Diversifying funding sources, expanding product offerings and developing marketing campaigns are other key steps that allow companies to increase financial stability and conquer new market segments. Equally important is the development of e-commerce and product certification, which enables companies to gain a competitive advantage in foreign markets, as well as the introduction of loyalty programmes that increase customer loyalty. Further strategies used by startups include cost optimisation, focusing on implementing innovations and automating production processes. In addition, a hemp startup, for example, pointed out that automating processes and cooperating with research units and universities not only enables innovation, but also better adaptation to changing conditions. Furthermore, regular adaptation to industry news and legislation allows companies to better respond to regulatory changes, which is particularly important in industries with specific requirements, such as the cannabis industry. In the case of media startups, which raise finance mainly from fundraising and crowdfunding, companies also monitor and manage their funding sources in an effort to increase sustainability through a greater share of individual donors in budgets and diversification of funding channels, which minimises the risks associated with potential problems in obtaining grants.

In summary, the **strategies and approaches that can be considered key to ensuring the overall resilience of a startup** are:

- employment of qualified specialists,
- diversification of funding sources,
- expanding the product range,
- development of marketing campaigns,
- development of e-commerce,
- introduction of loyalty programmes,
- cost optimization,
- focus on the implementation of innovations,
- automation of production processes,
- cooperation with research institutes and universities,
- regular updating with industry news,
- regular compliance with legislation,

Later in the interview, question 11 was asked:

*In your opinion, what are the main challenges of building organisational resilience in a startup?*

*Analysis of responses to question 11.* Respondent 1 pointed to **understanding and identifying the vulnerabilities** within the company that undermine its resilience and how to effectively manage these areas. Respondent 2 highlighted **the financial constraints** and the nature of the foundation's work, which does not have a commercial business model. For the company Respondent 3 described the challenge of **having to obtain exclusivity to sell products**, which is not always a straightforward procedure and requires lengthy negotiations with business partners. Respondent 4 noted that the challenges are **time and knowledge**. The need for ongoing analysis and the acquisition of relevant competences requires a lot of time and effort. Respondent 5 pointed out **the lack of continuity of funding** and **the difficulty in obtaining large investments**, which differs from the situation in large companies where investments are more stable. Additionally, startups often struggle with limited institutional and organisational knowledge, operating on a trial-and-error basis. Another problem is the **small number of employees who perform many different roles**. Respondent 6 highlighted **the unpredictability of legislation** and **strong competition** from companies with more capital. **Maintaining a good team** is also a challenge.

Respondents were also asked about future plans for the startup. Question 12:

*What are your startup's future growth plans and strategies (for the next 5 years)?*

*Analysis of the responses to question 12.* 5 out of 6 respondents indicated that the companies will operate, grow and **build their resilience**. 1 respondent declared that there were plans to close the business. While this company has been building and **trying to build its resilience** further, it is not yet able to do so in one area, which is the agreement between shareholders.

Question 13 was then asked:

*How does experience with crisis management and building organisational resilience inform these plans?*

*Analysis of responses to question 13.* The majority of respondents emphasise that the experience of crisis management **mobilises closer analysis** and an understanding of resilience. Companies plan to:

- introduce more effective management methods,
- better secure key processes,
- adapt activities to the market,
- create more flexible processes,
- diversify finances, customers, business partners.

Question 14 was asked in the next part of the interview:

*What factors do you consider to be key to a startup's survival and success in difficult market conditions?*

*Analysis of responses to question 14* Respondents cited as **key factors for the survival and success of a startup** in difficult market conditions:

- innovation,
- process automation,
- having a well-qualified management team,
- flexibility,
- a sense of the recipient's needs,
- proper cash flow management,
- good product,
- a strong team,
- effective PR,
- real sales,
- effective customer outreach,
- building customer loyalty,
- flexible adaptation to customer needs.

As management decisions often play a key role in shaping a company's strategy and actions in crisis situations, respondents were asked question 15:

*Please tell us what roles managers' decisions play and how their experiences influence the strategies and actions taken in crisis situations.*

*Analysis of the responses to question 15* Analysis of the responses from respondents indicates that the experience and **competence of managers has a significant impact** on the way a company handles difficult moments. According to respondents, **managers with a wealth of experience are better equipped to assess the risks** and consequences of their decisions. This enables them to take more informed and effective action in crisis situations. Previously acquired knowledge enables them to avoid mistakes that could be replicated in the absence of knowledge. In addition, previously acquired practice also allows them to implement proven solutions. **Experienced leaders, on the other hand, often use tried and tested patterns, which can both support and limit** their ability to adapt in the face of new challenges. Lack of experience among managers can lead to mistakes and decision-making in areas where they do not have sufficient knowledge, which in some cases will not have a negative effect, while sometimes it can lead to unwanted consequences. Ultimately, according to respondents, managers' experience in identifying and managing risks is **a significant competitive advantage**. Managers who have gained practice in various business ventures are able to respond more quickly and effectively to crisis situations, highlighting the importance of their role in building organisational resilience.

### 5.3. Research conclusions

The analysis of the respondents' answers to the questions posed during the interviews allows conclusions to be drawn regarding the research questions formulated at the outset of the study.

*Specific research question 1 What factors influence the organisational resilience of startups in dynamic market changes?*

From the respondents' answers, the following factors affecting the organisational resilience of startups can be identified:

- good management,
- agility,
- rapid decision-making,
- commitment of owners,
- team cooperation,
- brand recognition,
- analytical skills,
- innovation,
- automation,
- cash flow management,
- a strong team,
- effective PR,
- flexible adaptation to customer needs.

*Specific research question 2. Which strategies for managing organisational resilience drivers are most commonly used by startups?*

From the respondents' answers, the following strategies can be identified for managing factors affecting organisational resilience:

- investing in the development of managers,
- implementation of flexible organisational structures,
- keeping decision-making processes short,
- involving owners in operational management,
- promoting teamwork,
- building brand recognition and a positive image.

*Specific research question 3: How are startups adapting to changing market conditions?*

The following are the specific actions indicated by respondents on how startups are adapting to changing conditions:

- employment of qualified specialists,
- development of product offerings and new channels,
- increase owner involvement,
- negotiations with business partners,

- new product development,
- intensification of marketing activities,
- focus on profitable customers.

*Specific research question 4. What specific actions taken by startups contribute to successfully overcoming crises?*

The following actions taken by the surveyed startups can be distinguished, which contributed to their successful overcoming of crises:

- optimise costs and increase profitability,
- seeking funding,
- development of the offer,
- development of distribution channels,
- effective team and resource management.

*Specific Research Question 5: What are the best practices for managing organisational resilience that can be applied by startups in a dynamic market environment?*

Summarising the respondents' answers, best practices for managing organisational resilience can be detailed:

- investing in the development of the team's soft skills,
- fostering a culture of innovation,
- risk management and scenario planning,
- implementation of technologies supporting automation,
- building networks and partnerships,
- diversification of revenue sources.

*Specific research question 6. What inhibitors to effective organisational resilience management may exist in startups?*

The factors inhibiting effective organisational resilience management, as perceived by respondents, are as follows:

- limited financial resources,
- immature organisational structures,
- growing too fast,
- lack of diversity in sources of funding,
- over-reliance on a single customer or market,
- lack of cooperation and communication within the team.

*Specific research question 7. How do the experiences and decisions of managers influence the ability of startups to deal effectively with crises?*

According to the respondents' answers, experienced managers are better equipped to assess risks and make effective decisions in crisis situations, thanks to their prior knowledge and practice. They can avoid mistakes and implement proven solutions. However, the use of tried and tested schemes can both support and limit the ability to adapt to new challenges. Lack of

experience can lead to erroneous decisions that do not always have negative consequences, but can cause unwanted consequences. Ultimately, the experience of managers is a key advantage in building organisational resilience.

In summary, conclusions and answers to the key research questions that underpin the analysis can be formulated.

*Key research question 1. "What factors influence the organisational resilience of startups in the face of changing market conditions?"*

Based on the research conducted, a number of factors can be identified that have a significant impact on the organisational resilience of startups. A key aspect is good managers who can effectively assess crisis situations and make informed decisions. Organisational agility and flexibility promote rapid adaptation to changing conditions, which in turn enables competitive advantage. Rapid decision-making, linked to short decision-making processes, enables an effective response to market challenges. Owner involvement in day-to-day operations significantly influences effective management. Team cooperation and effective communication within the group foster innovation and speed of project implementation. Additionally, brand recognition and a positive image are key, as a strong brand builds trust among customers. Analytical competence enables informed decisions based on data. Innovation and automation of processes contribute to organisational efficiency, and proper cash flow management ensures financial stability. A strong team and effective PR are also important to help build customer relationships. Flexible adaptation to customer needs is key to survival in the market.

*Key research question 2. "What strategies for managing these factors contribute to successfully overcoming crises and barriers in their operations?"*

In response to this question, several key strategies can be identified that startups are most likely to use to manage the factors affecting their organisational resilience. First and foremost, investing in the development of managerial staff, through training and competence enhancement, translates into better crisis management. Implementing flexible organisational structures enables rapid adaptation to changing market conditions. Keeping decision-making processes short allows a faster response to change, and involving owners in operational management promotes the rapid identification of problems. Promoting team collaboration increases efficiency, and building brand recognition and a positive image attracts customers and increases their loyalty. The aforementioned strategies contribute to successfully overcoming crises and increase the overall organisational resilience of startups.

## 6. Discussion

It is worth noting that **there is no absolute measure for organisational resilience**, but in order to measure this attribute of the organisation, it is worth involving all groups of employees. This will result in an improved ability to anticipate potential threats and identify and respond to vulnerabilities. Additionally, it will enable a better understanding of the stakeholders and dependencies that support strategic goals and objectives (Soliwoda, 2020).

It is worth noting that resilience is a criterion for assessing organisations. S. Somers (2009) and I.H.S. Sawalha (2015) emphasise that organisational resilience is **a proactive measure**, but Longstaff (2005) and Sawalha (2015) also write about **a passive measure**. Resilience is a proactive measure when it provides a basis:

- the conscious development of the organisation in all areas of its environment,
- the implementation of systems which allow certain actions to be planned appropriately, react to unexpected events and give early warning of problems.

The passive measure of resilience, on the other hand, describes the state of the organisation at a particular point in time. It is applicable to the adaptation of an organisation to new threats and scenarios or to the simple reconstruction of operations after a crisis situation.

The above considerations allow us to conclude that **the basis for resilience measurement processes** and the process by which resilience can be seen as a measure of organisational improvement is risk management (Tarapata, Woźniak, 2022, p. 15).

**Measuring resilience is challenging**, as there are **several approaches to assessing** this concept in different application areas, at different levels of strategic resilience and representing attempts to construct different measurement tools (Mallak, 1998, pp. 148-152; Somers, 2009, pp. 12-23; Vidal R., Vidal L, 2020, p. 135). It is widely accepted that resilience should be measured in order to improve the performance of the business, so more and more organisations are trying to do so, seeing it as a necessary condition for strategy development. Lack of sufficient knowledge about the level of resilience is a significant challenge that prevents organisations from accurately identifying areas for improvement and effectively allocating resources to resilience initiatives.

The next problem is to distinguish **resilience issues concerning startups specifically**. A variety of elements can influence the development of resilience in corporations, SMEs or startups, but research findings in this area are often inconclusive. Since there is not enough research that identifies factors that **exclusively influence the resilience of startups**, the results of this study, as well as the study of **factors in the context of SMEs**, can be taken into account. W. A. Demmer et al. also note that elements affecting the resilience of large corporations can be applied to SMEs (Demmer et al., 2011).

H. Torstensson et al. identified several key drivers of resilience. Conclusions were drawn with a study of **Swedish SMEs** in the textile and clothing sector. Three mainly asset categories were identified (Abylaev et al., 2014):

- Resourcefulness (tangible resources, intangible resources, financial resources, social resources, network resources).
- Competitiveness (flexibility, networking).
- Learning and culture (employee wellbeing, leadership, rapid management decision-making, collectivity).

Some disagree with this approach and believe that owning these assets is a necessary condition, but not necessarily a sufficient one, to strengthen a company's resilience, as it is the ability to manage these assets effectively that can produce the desired results.

As for **the present study**, 'although sampling error cannot be determined in **non-random** sampling, some people find this method very useful (Kotler, 1999). Non-random, or non-probabilistic, techniques are based on the subjective judgement of the researcher, do not require specialised knowledge, and sampling does not involve high costs and is not time-consuming. Several key factors should be taken into account when deciding on a sampling technique, the most important of which is the purpose of the survey. Therefore, our results can be assessed as consistent with the research goal and problem. The **relevance** of the survey, on the other hand, means that users will correctly interpret the results obtained, so in this direction, the results of the survey are presented and analysed in detail in the study. An important aspect of the evaluation of the results is also their **acceptance** by the users, who can formulate specific opinions on the presented results. Based on the article, companies can use the recommendations presented to better prepare for crises, which can lead to greater stability and long-term growth.

Probabilistic techniques are used in studies aimed at verifying hypotheses, while non-probabilistic techniques are appropriate for initial familiarisation with the issue under study. The choice of non-probabilistic techniques allows preliminary results to be obtained quickly (Miszczak, Walasek, 2013). So, the present study can be treated as a **pilot study** and the conclusions adopted as hypotheses for deeper, and more costly, future extended studies with representative random samples.

## 7. Summary

This article attempts to analyse the organisational resilience of Polish startups, which is becoming crucial in the context of dynamic market changes. The aim of the study is to identify factors influencing the ability of startups to survive and adapt in the face of uncertainty and crises. Based on a literature review and field research using questionnaire interviews with startup executives, the main elements building organisational resilience were identified:



flexibility, rapid decision-making, management commitment and effective risk management. Startups in Poland use various crisis management strategies, including cost optimisation, development of new products and sales channels, raising funding and intensifying marketing activities. The study also found that crisis experiences shape long-term growth strategies, leading to greater awareness of risks and better preparation for unexpected challenges.

In conclusion, the article highlights the importance of organisational resilience as a key success factor for startups in a changing business environment and provides practical tips for managing resilience. The findings of the study may be useful for both researchers and practitioners interested in innovative startup management. At the same time, the need for further research on organisational resilience on a larger number of startups in different sectors using different research tools is highlighted.

## References

1. Abylaev, M. et al. (2014). Resilience challenges for textile enterprises in a transitional economy and regional trade perspective-a study of Kyrgyz conditions. *International Journal of Supply Chain and Operations Resilience*, 1(1), pp. 54-75.
2. Andriani, P. (2003). Evolutionary dynamics of industrial clusters. In: E. Mitleton-Kelly (ed.), *Complex Systems and Evolutionary Perspectives on Organisations: The Application of Complexity Theory to Organisations* (pp. 127-145). Oxford: Elsevier Science.
3. Crichton, T. et al. (2009). Enhancing organisational resilience through emergency planning: Learnings from cross-sectoral lessons. *Journal of Contingencies and Crisis Management*, 17(1), pp. 24-37.
4. de Moura, D. et al. (2021). Strategic Management of Organizational Resilience (SMOR): A Framework Proposition. *Revista Brasileira de Gestão de Negócios*, 23(3), p. 546.
5. Demmer, W.A. et al. (2011). Engendering resilience in small-and medium-sized enterprises (SMEs): A case study of Demmer Corporation. *International Journal of Production Research*, 49(18), pp. 5395-5413.
6. Holling, C.S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4(1), pp. 1-23.
7. ISO 22316:2017: *Security and resilience - Organizational resilience - Principles and attributes*. ISO 2017. Switzerland.
8. Kaczmarczyk, S. (2002), *Badania marketingowe [Marketing research]*. Warsaw: PWE, pp. 34-56.
9. Kotashev, K. (2024). Startup Failure Rate: How Many Startups *Fail* and Why in 2024? *Failory*, 9 January 2024.
10. Kotler, Ph. (1999). *Marketing*. Warsaw: Felberg SJA, pp. 126-127.

11. Majchrzak, M. (2020). Odporność przedsiębiorstwa w czasach nadzwyczajnych zagrożeń. Adaptacja koncepcji resilience [Corporate resilience in times of extraordinary threats. An adaptation of the resilience concept]. *Kwartalnik Nauk o Przedsiębiorstwie [Enterprise Science Quarterly]*, 54(1), p. 35.
12. Mallak, L.A. (1998). Measuring resilience in health care provider organizations. *Health Manpower Management*, 24(4-5), pp. 148-152.
13. Miszczak, A., Walasek, J. (2013). Techniki wyboru próby badawczej [Techniques of research sample selection]. *Zeszyty Naukowe Wydziału Zarządzania i Dowodzenia Akademii Obrony Narodowej*, 2(6), pp. 100-108.
14. PARP - Polish Agency for Enterprise Development. *Czym jest start-up i na jakie wsparcie z PARP mogą liczyć przedsiębiorcy z terenu Polski Wschodniej? [What is a start-up and what support from PARP can entrepreneurs from Eastern Poland count on?]*. Retrieved from: <https://www.parp.gov.pl/component/content/article/86126:czym-jest-start-up-i-na-jakie-wsparcie-z-parp-moga-liczyc-przedsiębiorcy-z-terenu-polski-wschodniej>, 5.04.2024.
15. PARP - Polish Agency for Enterprise Development. *PARP wspiera rozwój startupów. Dotychczas otrzymały ponad 2 mld zł z Funduszy Europejskich [PARP supports the development of startups. So far they have received more than PLN 2 billion from European Funds]*. Retrieved from: <https://www.parp.gov.pl/component/content/article/86654:parp-wspiera-rozwoj-startupow-dotychczas-otrzymaly-ponad-2-mld-zl-z-funduszy-europejskich>, 4.04.2024.
16. Skala, A. (2017). Spiralna definicja startupu [Spiral definition of a startup]. *Przegląd organizacji*, no. 9, p. 36.
17. Soliwoda, M. (2020). *Odporność z perspektywy ekonomii i finansów. Wybrane problemy [Resilience from the perspective of economics and finance. Selected problems]*. Warszawa: Instytut Ekonomiki Rolnictwa i Gospodarki żywnościowej – Państwowy Instytut Badawczy, p. 39.
18. Somers, S. (2009). Measuring resilience potential: An adaptive strategy for organizational crisis planning. *Journal of Contingencies and Crisis Management*, 17(1), pp. 12-23.
19. Startup Poland: *Polskie startupy 2023 [Polish startups 2023]*. Warszawa: Fundacja Startup Poland, pp. 10-99. Retrieved from: <https://startuppoland.org/>
20. Sutcliffe, K.M., Vogus, T.J. (2003). Organising for resilience. In: K.S. Cameron, J.E. Dutton, R.E. Quinn (eds.), *Positive Organizational Scholarship: Foundations of a New Discipline* (pp. 94-110). San Francisco: Berrett-Koehler.
21. Tarapata, J., Woźniak, J. (2022). *Odporność organizacji. Cyfryzacja, bezpieczeństwo, innowacje [Organisational resilience. Digitisation, security, innovation]*. Warszawa: Difin, pp. 10-11.
22. Vidal, R., Vidal, L.F. (2020). Organisational resilience: a review of definitions and measures. In: A. Antunes da Luz (ed.), *Tópicos Especiais em Engenharia de Produção 2* (p. 135). Ponta Grossa, AYA.

23. Ząbek, A. (2023). Jakie czynniki wpływają na powodzenie startupu? [What factors influence the success of a startup?]. *Marketing i biznes*, 22.03.2023.
24. Zabłocka-Kluczka, A. (2012). Odporność organizacji na kryzys [Resilience of organizations to crisis]. *Prace naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, no. 276, p. 95.
25. Zaveri, A. (2023). *Analiza treści a analiza tematyczna: Bliższe spojrzenie* [Content analysis versus thematic analysis: A closer look]. Mind the graph. Retrieved from: <https://mindthegraph.com>, 9.07.2023.