

Indicators of The Development of Enterprises from the SME Sector in the Conditions of COVID-19 Pandemic in Poland*

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Abstract

The development of small and medium-sized enterprises (SMEs) is an important subject of interest in the field of economic and social sciences. It is caused, inter alia, by the influence of the SME sector entities on the socio-economic processes taking place in the modern economy. In many countries, small and medium-sized enterprises constitute an important base of entrepreneurship and create a dynamically developing sector of the economy, but on the other hand, it is an extremely "delicate" sphere of activity, susceptible to the influence of various factors and conditions. In this aspect, the COVID-19 pandemic – caused by the SARS-CoV2 coronavirus – can be indicated. It started as an epidemic on November 17th 2019 in Wuhan, Hubei Province, Central China, and on March 11th 2020, was declared a pandemic by the World Health Organization (WHO) (Coronavirus..., 2020).

The health crisis caused by COVID-19 and the ongoing isolation of many markets pose unprecedented challenges to people and economies around the world. According to the International Labour Organization, about 2.7 billion workers (81% of the world's workforce) are partially or completely cut back on work. In the second quarter of 2020, up to 195 million people could lose their jobs, including 12 million people in Europe alone. To mitigate the effects of the crisis, governments of many countries are introducing various support programs for entrepreneurs and employees (PulsHRa..., 2020). In order to overcome the economic slowdown, organizations should adapt to the new reality, which on the one hand may generate barriers, but also development factors.

The article will present the results of an expert survey on barriers and factors for the development of small and medium-sized enterprises during the COVID-19 pandemic in Poland. The aim of the article is **to identify potential barriers and determinants of the development of economic entities from the SME sector in Poland during the COVID-19 pandemic**, based on the opinions of Experts.

Keywords: Enterprise Development, COVID-19 Pandemic, Sector of Small and Medium Enterprises, Determinants of Enterprise Development, Barriers of Enterprise Development.

Introduction

In order to survive, an enterprise strives for development, which often boils down to a set of activities introducing such internal changes in the system, caused by active shaping of external conditions, as a result of which the system is able to achieve a greater degree of complexity and thus a greater repertoire of diversity compared to earlier state (Hapten, 1988; Koontz & O'Donnell, 1989; Royston & Altman, 1994; Segarra & Callejon, 2002).

The development of the enterprise means coordinated changes to the enterprise's systems, adapting to the constantly changing environment. These adjustments are effective if they ensure that the enterprise achieves and maintains a competitive advantage, which is a prerequisite for surviving on the market (Strotmann, 2007; Watson, 2010).

Development is primarily a qualitative phenomenon consisting in the introduction of product, process and structural innovations as well as in the field of organization and management (Pierścioneck, 1998). Development is an objective phenomenon occurring in society and economy, consisting in constant changes, however, not every change should be equated with development (Piecuch, 2010).

The global COVID-19ⁱ pandemic has forced many changes in the approach to enterprise management, the basic dimension of which is the ability to adapt tasks and functions as well as methods of work organization and management to the radically changing conditions of their operations. On an international scale, measures have been taken to prevent the spread of disease. Travel has been reduced, quarantines and curfews have been introduced and a number of sports, religious and cultural events have been postponed or cancelled. Some countries have closed their borders or introduced restrictions on border traffic, including the arrivals of passengers, and restrictions on people crossing the border. Controls at airports and railway stations were introduced. The pandemic caused global, social and economic disruptions, including the largest worldwide recession since the Great Depression (Garcia et al., 2020). It led to the delay or cancellation of events, widespread shortages in supplies, which were deepened by panicked purchases, which in particular changed the structure and perception of barriers and factors for the development of enterprises in the SME sector, which are extremely vulnerable to any cyclical changes.

Barriers and determinants of the development of enterprises from the SME sector

The development of the enterprise means coordinated qualitative changes in the systems in the enterprise, adapting them to the dynamic environment. These activities are effective if they ensure that the enterprise achieves and maintains a competitive advantage, which is a necessary condition to survive on the market (Urbaniak, 2016; Wyrwicka, 2003).

The essence of managing an organization and shaping its development potential, and thus determining the right strategic directions, is to deal with various kinds of tensions. The ability to identify contradictions and then reasonably integrate them, thanks to which a certain kind of complexity and uniformity of development is achieved, is a challenge for people managing enterprises in today's world (Machaczka & Machaczka, 2011, pp. 162-167).

In this context, it is worth referring to the concept of barriers to enterprise development, which may constitute the adopted solutions in terms of resources or processes and the related states and the situation in the environment. Business development barriers are divided into two categories: external and internal. The first ones include market, personnel, financial barriers resulting from the government's economic policy, legal barriers resulting from the lack of access to information. On the other hand, the second (internal) ones include: imperfections in the field of management, basic activity (e.g. production), lack of competences or an inadequate scale of activity (Strategor, 2001; Czekaj, 2010).

Among the internal barriers to the activity and development of the enterprise, there are, therefore, imperfection in the management, limitations related to the basic activity, scope of operation or lack of competences of the owners and staff of the enterprise (Table 1).

Table 1: Characteristics of individual groups of barriers to the development of enterprises from the SME sector (Matejun, 2007)

Management imperfections	
Development strategy errors	<ul style="list-style-type: none"> - demonstrated mismatch between the product or services and the expectation of recipients, - bad location of the enterprise, - too low initial capital, - dependence on a specific group of recipients/suppliers
Operational management errors	<ul style="list-style-type: none"> - lack of funds for current operations and investments - mistakes made in planning, implementing solutions and control
Staffing problems	<ul style="list-style-type: none"> - maladjustment of incentive systems or Staff competences to the needs of the company's operations, - mismatch between qualifications or terms of reference of the management to the needs of the organization, - permanent changes at the highest levels of management
Weaknesses of organizational structures	<ul style="list-style-type: none"> - communication problems within the company, - lack (or errors) of allocation of decision-making powers, - insufficient level of delegation of tasks and powers, - lack of staff preparing indications of the spectrum of possibilities in order to make the right decision
<ul style="list-style-type: none"> - unforeseen increase in operating costs: rents, energy, telecommunications fees, costs of raw materials, semi-finished products and others. - ignorance of modern management concepts, methods or techniques. 	
Barriers related to the owners policy	
Inadequate skills	<ul style="list-style-type: none"> - in the field of sales and marketing, - in the field of business planning, - in the field of financial management,
<ul style="list-style-type: none"> - low tendency to learn, development innovation and creativity, - abandonment of <i>know-how</i> - chasing the novelty without taking into account the experiences of previous professional generations 	
Barriers related to the basic activity	
<ul style="list-style-type: none"> - means of work or technologies inadequate to the needs, - processing capacity inadequate to the needs, - supply difficulties, - problems with technology transfer, difficulties in keeping up with technical progress. 	
Housing barriers	
<ul style="list-style-type: none"> - inadequate (too small or too large) premises, - problems with choosing the right location for customer service points, - renovation costs, - no parking spaces, - remoteness from main communication routes. 	
Barriers related to the size of the business	
<ul style="list-style-type: none"> - failure to recognize market needs in the context of the product life cycle, - no risk management or deliberate provisioning, - lack of flexibility related to the size of the business, - lack of readiness to change the market offer, - inappropriate human resources policy. 	

The problem of the impact of internal barriers to activities grows and accumulates with the growth of the organization (e.g. measured by the size of employment, sales) and its "aging". Larger, longer-lasting businesses face more complex challenges. An example is the need to separate management processes from the ownership sphere. The negative impact of limited housing resources may also appear to a greater extent, and the activity in a

complex market with greater volatility may introduce the need to improve the qualifications and competences of the management and employees of such entities (Matejun, 2007, pp. 128).

In the processes of their functioning, enterprises may use various factors that may support their development. These factors, referred to as stimulators, determinants, or catalysts of development, are measurable components distinguished in a complex of phenomena, which are considered as the cause of development processes (Pszczolowski, 1978) and constitute their driving forces. The literature on the subject points out that they may come from within the organization, being its strengths (internal factors) or from the environment, creating opportunities for the development of a small enterprise (external factors) (Nogalski, Rutka and Wójcik-Krapacz, 2007). The selected internal and external factors (stimulants) of the development of small and medium-sized enterprises are presented in Table 2.

Table 2: Selected internal and external factors (stimulants) of the development of small and medium-sized enterprises (Matejun, 2008)

Internal factors of the development of SME	External factors of the development of SME
<ul style="list-style-type: none"> - the ability to manage the resources of the organization -knowledge, experience and entrepreneurship of the management -employees' competences and skills -the nature of the market the knowledge of it -ability to implement technical progress -the size of the capital -production abilities -quality of offered products and / or services -cooperative links -ability to operate flexibly -level of sales profitability 	<ul style="list-style-type: none"> -legal conditions for starting and running a business -the country's economic growth -development of demand and supply in the market -market competition -access to external financing -customs policy -regulations of the financial and tax system -the government's policy towards SMEs -the scope of the state's financial and non-financial support -entrepreneurial culture

Enterprises always operate in a specific external environment. They operate in a specific region in conjunction with the state and other companies. The environment provides them with certain opportunities and possibilities, but at the same time imposes requirements and limitations on them. This state of affairs is of particular importance during the COVID-19 pandemic, which has had an unprecedented impact on the activities of entities from the SME sector

The impact of the COVID-19 pandemic on the development opportunities of enterprises in the SME sector

The COVID- 19 pandemic is not only the most serious global health crisis since the Great Flu in 1918 (the so-called Spanish flu), but it is, also, the most economically costly pandemic in recent history (BIS, 2020). The economic effects of "stopping" the globalized and computerized world are felt by all participants of economic processes.

According to the estimates of the European Commission, all European Union (Eu) countries will face a recession (Forbes, 2020). Despite the swift and comprehensive policy response at both EU and national level, the coronavirus pandemic will have a significant impact on the economic performance in 2020 as lifting of restrictions is slower than expected. The scale and duration of the pandemic and possible future containment measures are still largely unknown. The Eu economy is expected to contract by 8.3% in 2020 (including Poland by 4.3%), and by 5.8% in 2021. In the euro area, a decrease of 8.7% in 2020 and an increase of 6.1% in 2021, respectively (Forecast..., 2020).

Interesting is the opinion of the Bank for the International Settlements (BIS) analysts, which indicate that, on the one hand, the high losses due to global efforts to contain the COVID-19 pandemic are unprecedented. On the other hand, it is unclear if the counterfactual would be less costly – an uncontrolled pandemic like the Great Flu of 1918 caused significant and lasting damage. It is therefore necessary to better understand the COVID-19 shock transmission channels for the economy, the interactions between economic decisions and the epidemic, and political compromises. (BIS, 2020).

The pandemic has already marked its different impact on the situation of individual sectors of the economy. In the first place, it hit the areas of the economy closely related to the spatial movement of people, i.e. tourism and communication and secondly with the movement of the goods, i.e. trade. The declines are also affecting the global financial markets.

Therefore, in the face of the spread of the SARS-CoV-2 virus, it is reasonable to ask about the effects of this phenomenon on the Polish, micro, small and medium-sized enterprise sector. This is an important matter, because nearly half of the gross domestic product in Poland is produced in this sector, and almost 60% of workers are employed there. It is also the sector most exposed to any changes and turbulences in the economy.

Based on the research carried out jointly by PwC, SpotData and CBM Indicatorⁱⁱ, it can be indicated that almost **90% of enterprises in Poland from the SME sector experienced disruptions in their operations resulting from social isolation and changes in customer behaviour**. From over one third of companies (35.3%), the decrease in revenues exceeds 50% compared to the same period in the previous year (PwC, 2020).

In addition to the drop in revenues, delays in payments from customers are also a very important problem. Over 50% of companies experienced difficulties with financial liquidity. One third of companies intend to cut employment in response to the economic shock. Most of such companies are among small enterprises – as much as 42.5%. On the other hand, in the group of medium-sized enterprises employing 50-249 employees, a quarter has already started or are planning layoffs. This confirms the conclusion that the smallest companies feel the shock the most, and the larger companies may be slightly more resistant to short-term shocks (PwC, 2020).

It can therefore be concluded that the scale of the negative effects of the COVID-19 pandemic for the Polish SME sector is unprecedented in the history of the Polish free market economy. In this context, it is particularly important to search for and identify both threats and market opportunities. One of the elements of these activities is the analysis of barriers and indicators of development, which was carried out in the research part of this article with the use of an expert survey and the use of network analysis to interpret the results.

Methodology

The aim of the research was to **identify potential barriers and determinants of the development of economic entities form the SME sector in Poland during the COVID-19 pandemic**, based on the opinion of Experts. The following research problems were formulated:

1. **What are the barriers to the development of enterprises from the SME sector in Poland during the COVID-19 pandemic**, based on the opinions of Experts?
2. **What are the dominants of the development of enterprises from the SME sector in Poland during the COVID-19 pandemic**, based on the opinions of Experts?

In the process of collecting research material, two research methods were used: **a questionnaire survey (expert survey)** and **a network analysis**.

The questionnaire survey consists in obtaining data by asking questions on the basis of a specially prepared questionnaire - obtaining answers by the interviewer from respondents, selected on the basis of appropriately selected research samples. It should be noted that an expert survey is a special type as it consists in using the knowledge and creativity of people, who are specialists in a given field (Magruk, 2005, pp. 257). Most often they are carried out on a small, deliberately selected research sample. In expert surveys, questions asked to respondents concern not only facts or their attitude towards them, but also attempts to explain and predict them. Thanks to professional knowledge and "imagination embedded in reality" they can also create valuable (realistic) forecasts of the development of the situation in a given fragment of the economic and social reality (Babbie, 2004, pp. 327; Churchill, 2002, pp. 309-311).

Network analysis is a method of detecting, describing and identifying relationships among groups of people or organizations (Wassermann & Faust, 1994). It is an interdisciplinary method that uses elements of graph theory, statistics, matrix algebra, as well as sociology, social psychology

or anthropology, focusing primarily on the structure of the existing relationships between social entities (people, teams, organizations, regions, etc.). Network analysis is practically used (mainly in analytical processes) in management and quality sciences, both at the supra-organizational level, including interregional (Reid, Smith & Carroll, 2008, pp. 345-352), and in relation to the broadly understood activity enterprises (Kijkuit, van den Ende, 2010, pp. 451-479).

In the research part of the article, the following network analysis indicators will be used:

- Nodes betweenness, it is the ratio of the number of the shortest paths between any two nodes passing through a given node to the total number of all the shortest paths; sometimes mediation is normalized in such a way that the maximum mediation in the network is 1, mediation indicates which nodes are the most important, i.e. it determines the probability with which a given factor (element) is key for the total tides in the network;
- Cumulative value of a vector – it is the sum of all connections from a given network node, it parameterizes the range of influence of a given factor on the flows in the network.

Network analysis allows to evaluate network structures by analysing connections at various levels, identifying structural gaps and distinguishing subgroups connected by a particularly strong structure of relations, as well as assessing the importance of individual people in the analysed economic and social processes (Scott, 2000).

The "Pajek" program developed by V. Batagejland A. Mrvar (Program, 2015), was used for the analysis and visualization, thanks to which it is possible to reflect the relations and interactions between departments, employees, their activities, processes, material and non-material resources, as well as the environment of the organization.

The article is a continuation of the series of experimental research on the use of the "Pajek" program as an auxiliary tool in creating a concept of solving specific problems of enterprises based on the relational systems between employees and other resources at the disposal of the organization, as well as environmental factors and phenomena (see: Brzeziński, Wyrwicka, 2015; Brzeziński, Kliber & Wyrwicka, 2016).

The study was conducted in August-September 2020 on a sample of 34 experts related to both the business and scientific spheres (16 scientists from the disciplines of management science, economics and finance, 3 business owners and 15 managers with at least 5 years of experience in their job). An expert research form was used in which the respondents were asked about barriers and determinants of entities from the SME sector in Poland. Moreover, the impact of these factors was determined on a scale from 1 to 5 (where 1- no impact, 2- weak impact, 3- medium impact, 4 – high impact, 5- very high impact)

Indicators and barriers of the development of enterprises – analysis of own research

The study was conducted in August-September 2020 on a sample of 34 business experts and scientists. An expert questionnaire form was used to collect the research material, which consisted of two parts: concerning the assessment of the impact of barriers on the development of enterprises from the SME sector, and also concerning the assessment of the impact of determinants on the development of enterprises from the SME sector. In terms of barriers, the following categories were distinguished: administrative, tax, management, owner, policy, core business and housing. However, development was divided into internal and external factors.

In terms of analysis and interpretation, network analysis tools were used – visualizations and brokerage indicators and vector value. In response to individual research problems, a division was made into the work part related barriers to development, as well as determinants. In the case of work visualizations in the "Pajek" program, the thickness of the lines between individual network element determines the strength of the relationship and the thicker it is, the stronger the impact.

In order to select the factors significant for the development of an enterprise in the SME sector, the authors chose two parameters for the analysis: the intermediate value and the vector value, which can be determined by the "Pajek" program.

The value of intermediation indicates the probability with which a given factor is crucial for the formation of barriers or determinants in this case (it is calculated from all connections in the network, and the values sum up to one). The higher the mediation value, the greater the importance of a given factor can be indicated. On the other hand, the value of the vector determines the strength of the factor's impact on the indicator, in this study it ranges from 1-5 (where 1- no impact, 2- weak impact, 3- medium impact, 4- high impact, 5- very high impact). The higher the value of the vector, the greater its impact on the indicator.

Individual opinions of experts have been compiled in relations to individual barriers and determinants of enterprise development, taking into account the strength of the impact of individual factors, On this basis, it is possible to indicate the characteristics of the relationship network:

- 104 network elements, including: 34 experts, 70 factors (35 barriers of development; 35 determinants of development);
- 2238 network connections.

The summary of experts' opinions is included in the network visualization -fig. 1. Symbols:

- Black diamond – indication of individual experts;
- Red circle – categories of barriers to enterprise development;
- Red triangle – barriers to enterprise development;
- Green circle- categories of enterprise development factors;
- Green triangle – factors of the company's development.

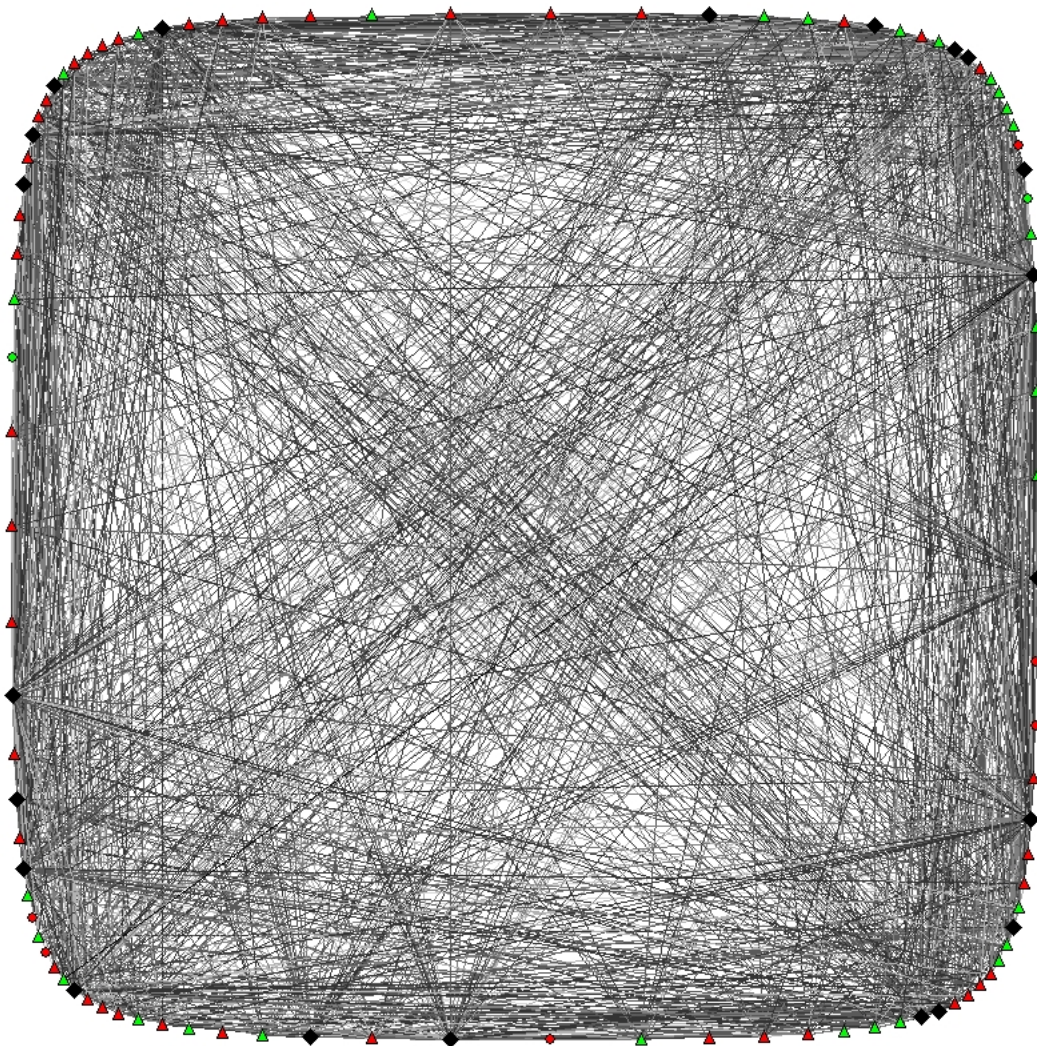


Fig. 1: Network visualization of Experts' opinions on barriers and determinants of the development of enterprises from the SME sector in Poland in the COVID-19 period (source: own study)

Barriers of the development of enterprises from the SME sector in Poland in the COVID-19 period, based on the opinion of Experts

The value of the vector determines the strength of the factor's impact on the indicator, in this study it ranges from 1-5 (where 1- no impact, 2- weak impact, 3- medium impact, 4- high impact, 5- very high impact). The higher the value of the vector the greater its impact on the indicator. The list of the highest values of cumulative vectors of barriers to enterprise development is presented in Table 3.

Table 3: List of the highest values of cumulative vectors of barriers to the development of enterprises from the SME sector in Poland – based on experts' opinions (Own study)

136,000000	No risk management or intentional provisioning
136,000000	Development strategy errors
135,000000	Drop in revenues due to the COVID-19 pandemic
134,000000	Low propensity to learn, develop innovation and creativity
134,000000	The nature of the market and its knowledge
130,000000	Operational management errors
130,000000	Personnel problems

It should be noted that the most important barriers (based on vector values in the network) are: no risk management or intentional provisioning; development strategy errors; drop in revenues due to the COVID-19 pandemic.

The value of intermediation indicates the probability with which a given factor is crucial for the formation of barriers or determinants of development (it is calculated from all connections in the network, and the values sum up to one). The higher the mediation value, the greater the importance of a given factor can be indicated. Table 4 presents the list of the highest values of the index of intermediation of barriers to enterprise development.

Table 4: A list of the highest values of the index of intermediation of barriers to the development of enterprises from the SME sector in Poland – based on the opinion of experts (Own work)

0.000538	Duration of proceedings before a civil and administrative court
0.000538	Procedures of applying for aid funds and their settlement (also in the scope of the
0.000538	Public procurement procedures
0.000538	Number of required permits, permits, concessions, licenses
0.000538	Labor law regulations
0.000538	Duties regarding declarations submitted to administrative authorities
0.000538	Start-up procedures
0.000316	The period of waiting for the interpretation by the Minister of Finance

Among the factors with the highest value of intermediation index, we can distinguish: duration of proceedings before a civil and administrative court; procedures of applying for aid funds and their settlement; public procurement procedures; number of required permits, permits, concessions, licenses; labor law regulations; duties regarding declarations submitted to administrative authorities; Start-up procedures; the period of waiting for the interpretation by the Minister of Finance.

Determinants of the development of enterprises from the SME sector in Poland in the COVID-19 period, based on the opinion of Experts

The development factors with the highest cumulative values of vectors include: ability to manage company resources; the quality of the products and / or services offered; shaping the demand and supply in the market. The list of the highest values of cumulative vectors of barriers to enterprise development is presented in Table 5.

Table 5: A list of the highest values of cumulative vectors of determinants of development of enterprises from the SME sector in Poland – based on experts' opinions (Own study)

146,000000	Ability to manage company resources
141,000000	The quality of the products and / or services offered
136,000000	Shaping the demand and supply in the market
134,000000	The nature of the market and its knowledge

133,000000	Management knowledge, experience and entrepreneurship
133,000000	Ability to act flexibly
133,000000	Legal conditions for starting and running a business
130,000000	Employees' competences and skills
130,000000	Regulations of the financial and tax system

With regard to development determinants, the same -high – value was obtained by many factors, such as: legal conditions for starting and running a business, the rate of economic growth of the country after the COVID-19 pandemic and shaping the demand and supply in the market (Table 6).

Table 6: A list of the highest values of the intermediation index for the determinants of development of enterprises from the SME sector in Poland – based on experts' opinions (Own work)

0,000582	Legal conditions for starting and running a business
0,000582	The rate of economic growth of the country after the COVID-19 pandemic
0,000582	Shaping the demand and supply in the market
0,000582	Market competition
0,000582	Access to external financing (including the
0,000582	Customs policy
0,000582	Regulations of the financial and tax system
0,000582	Government policy towards enterprises from the SME sector
0,000582	The scope of the state's financial and non-financial support
0,000582	Entrepreneurial culture
0,000582	Freezing the economy after the lock-down period caused by the COVID-19 pandemic

It should be noted that it is interesting that both experts and scientists did not indicate any specific features that may be of particular importance during a global pandemic. First of all, entities from the SME sector are struggling with the decline in revenues, the blunders of strategies that did not take into account the epidemic. In the current situation, the implication of the development of small and medium-sized enterprises may be the modification of business models and a flexible focus on identifying market niches and creating a new range of services or expanding the functionality of products. This applies to both relationships with individual and business customers. Currently, the second wave of epidemics is taking place in Poland, therefore the experiences of entrepreneurs from the first half of this year, as well as the identified development factors, may contribute to the development of strategic premises that will help to survive on the market in this difficult period.

Conclusions

The Polish economy has not experienced such a violent shock as in response to the COVID-19 pandemic since the systemic transformation in 1989. This is a new situation for owners, managers, employees and politicians alike. The scale of the crisis and recession is significant at the macroeconomic level, and the small and medium-sized enterprise sector itself was significantly affected by the "freezing of the economy". It is estimated that as many as 90% of entities in this sector experienced business disruptions, including those related to reduced turnover, difficulties in maintaining financial liquidity, or the need to reduce employment (PwC, 2020).

Based on the conducted research based on the opinions of experts, the most important barriers to development include: no risk management or intentional provisioning, low propensity to learn, develop innovation and creativity, problems with technology transfer, difficulties in keeping up with technical Progress, inadequate skills in sales, business planning, financial management, marketing, low propensity to learn, develop innovation and creativity as well as chasing the novelty without taking into account the experiences of previous professional generations. However, the factors of development include primarily: the quality of the products and / or services offered, ability to manage company resources, sales profitability level, legal conditions for starting and running a business, the rate of economic growth of the country after the COVID-19 pandemic, as well as shaping the demand and supply in the market.

In addition, the very circumstances surrounding the COVID-19 pandemic provide an opportunity for companies to somehow challenge the current perception of work, or even give it a new shape in the future. It is primarily about introducing new working methods – promoting flexibility in the workplace, adapting the environment in terms of maximizing commitment and productivity, and in a broader context even adapting to the lifestyle and work of individual employees (PulsHRb).

Therefore, the determinant of enterprise development may be not only the provision of appropriate equipment (breaking the technological barrier), used to perform professional duties, but also a change in the aspect of work culture – to a flexible work environment, focused on task-oriented work, or optimization of investments, the pandemic stood in the opposition to the perception of the job.

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ⁱ By September 4th 2020, there were nearly 26.34 million cases of COVID-19 in 188 countries and territories, including over 869,000 deaths and over 17.57 million recoveries (ECDC, 2020).

ⁱⁱ The aim of the study was to analyse the first effects on companies of the fight against COVID-19 disease. The survey was conducted on March 24th – April 2nd this year, with the use of telephone interviews (the so-called CATI survey) and on-line surveys, on a sample of over 750 micro, small and medium-sized enterprises (PwC, 2020).