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Russian Small and Medium-sized Enterprises Digital Potential: Essential Characteristics and Assessment

Valeria Deryzemlya[1*], Anna Ter-Grigoryants[1]

[1] Department of Economic and Audit Safety, North Caucasus Federal University, RUSSIA.
**Corresponding Author (Tel: +7-96144485136, Email: segwan@rambler.ru).*

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Abstract

The article reveals the potential of digital transformation of small and medium-sized businesses as a factor in successful entrepreneurial activity in an unstable market environment. In the digitalization of companies' business processes, an objective and reliable assessment of the level of formation of their digital potential becomes an important aspect of ensuring development effectiveness. The study highlights the main characteristics of a commercial structure's digital potential as an element of its economic potential. The methodological toolkit for assessing the digital potential of medium and small businesses based on the digital potential index calculation is substantiated.

Disciplinary: Business & Management (Digital Entrepreneurship and SME), Economic & Finance.

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1 Introduction

Current political, economic, technological, and social conditions of the market environment dictate commercial structures' functioning rules. Today's realities testify to the need for business processes to correspond to society's existing information needs. The available digital potentials largely determine the competitiveness of a company. Simultaneously, the vector aimed at developing digital culture has been adopted in many countries of the world.

In a general sense, digital transformation refers to transforming a business with digital technologies in mind. The new economy implies changes in business models, strategies, culture, company goals, and partnerships. Such adaptation allows enterprises to obtain a more significant socio-economic effect from doing business and to increase their competitiveness.

Many scientists considered the potential of the enterprise as an economic factor. Abalkin (1981) understood potential as an aggregate of resources. Many other scientists used a similar approach in their works. Modern researchers supplement classical concepts depending on the conditions of functioning of the objects under study. For example, Samadova (2019) discussed the complexity of the potential economic system, highlighting its components as production, labor, financial, resource, organizational and managerial, market, innovation, and other potentials. Modern scientists, however, focus on the main forces that shape the economic potential and determine the future of the economy. These include demographic trends expressed in a young, adaptive workforce that predetermines the digital economy's rise (Breuer et al., 2018).

The term "digital potential" is currently at the stage of active study and development. This situation is primarily because this issue concerns the "digital economy" as a whole. New economic trends presuppose the transformation of classical ideas about the essential characteristics of the used conceptual apparatus. Considering these terms in the framework of the classical concept of "economic potential", digital potential should be attributed to the basic elements in the context of widespread transformation. As a result, the composition of a modern enterprise's economic potential must be investigated on seven grounds (Figure 1).

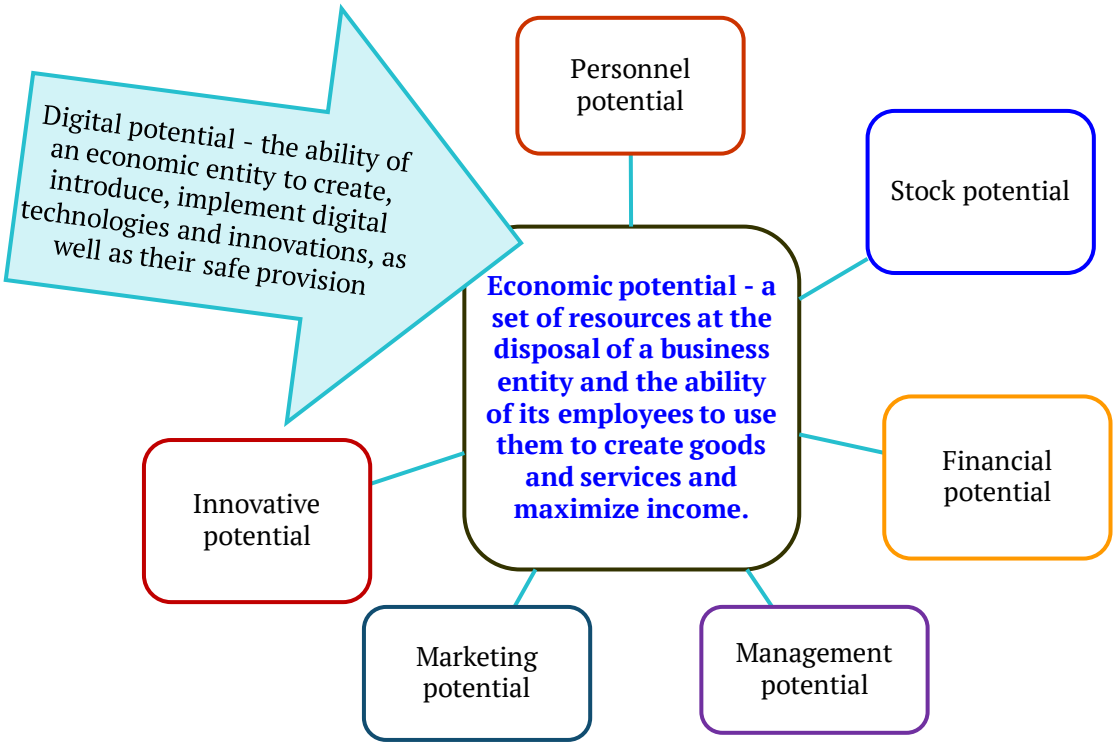

Figure 1: Digital Potential in the Economic Potential of a Commercial Structure.

Innovation taking place in a company today is often associated with digital technology. There is a high rate of digitalization of society, making it possible to identify digital potential as an economic component of its development prospects. As a result, digital potential reflects the ability of an economic entity to create, introduce, implement digital technologies and innovations and their safe provision.

It should be noted that an enterprise's digital potential must be considered in interconnection and interdependence with other components of economic potential. Thus, human resources reveal the enterprise's capabilities in terms of its personnel's quantitative and qualitative characteristics. The stock potential is understood as the optimal use of fixed assets and current assets of the company. The financial potential reflects the enterprise's economic security with finances that can fully cover its costs. Managerial - reflects top managers' capabilities in making decisions in various areas of the company's activities. The marketing potential is based on a successful product promotion concept that can ensure high market competitiveness. Innovation potential is a relatively new concept, included in the basic elements of the concept of economic potential, which implies the possibility of investment in an enterprise aimed at implementing innovative projects.

Economic reality is driving the business towards digital technology. Companies need to be up-to-date to be successful in the marketplace. At the same time, the assessment of digital potential will allow us to determine the level of readiness of a particular economic entity for digital transformation and, as a result, identify strengths and weaknesses to achieve digital maturity and the formation of a single digital culture.

2 Materials and Methods

In the course of the research, the works of foreign and Russian scientists and practitioners in the field of small and medium business development and the digital transformation of the economy were used. Many works are devoted to analyzing the characteristics of small and medium-sized businesses in the world and are complementary to each other. According to Italian scientists, small and medium-sized companies will survive, grow, and remain competitive if they recognize digital technologies' value (Denicolai et al., 2021). Canadian researchers say that the transformation of such firms in the context of a focus on sustainable development depends on partnerships with other organizations in the digitalization of business processes (Kundurpi et al., 2020). At the same time, it should be noted that research in the field of digitalization and assessment of its potential within a particular enterprise or industry is at the stage of study and development. So many dissertations, articles, and abstracts are devoted to this particular topic. For example, Gorodnova et al. (2019) consider digital potential from customer satisfaction and note the digitalization trend aimed at using technologies for in-depth analysis of the audience. A group of scientists led by Matarazzo (2020) concludes in their work that modern small and medium-sized businesses, under the influence of digital transformation, are changing business models to new ones. At the same time, the potential is determined by customer engagement, combining online and offline channels.

As an informational basis for the study, we used reviews and reports of European (Eurostat, 2020) and Russian (Rosstat, 2019) statistical agencies and open access materials from analytical companies.

The empirical basis of the study was the published results of research institutions and rating agencies, the information provided by the periodical business and scientific publications, including

in the resources of the global information network Internet, in survey materials carried out by independent analytical organizations, legislative and regulatory acts regulating entrepreneurial, innovative scientific and technical activities in the Russian Federation, research by international organizations, authors' applied research.

The study's basis is applying a systematic approach to the study of the digital potential of economic structures. In the process of studying the readiness for the digital transformation of small and medium-sized businesses, general scientific methods of theoretical knowledge were used: expert methods, methods of statistical, economic, and logical analysis and synthesis, comparison, deduction and generalization, graphic modeling technologies. Each method was used according to its functional characteristics, making it possible to create conditions for the validity and authenticity of generalizations, conclusions, and statements obtained in work.

In the study, the index of the company's digital potential is

$$I = \frac{\sum i_{sub}}{n} \quad (1),$$

where

I – the index of digital potential;

i_{sub} – private index of digital potential;

n – the number of subindices.

3 Results and Discussion

Digital transformation is manifested in the activities of each business entity. Owners and managers of companies are coming to understand the positive properties of digitalization, which are expressed in reducing costs, increasing capital turnover, increasing information accessibility for both managers and clients, and, as a result, the overall effective development of the business.

Digitalization has created new forms of market leadership. Classic business models, in which success was determined by the size of assets and functioning stability, are fading into the background. Flexibility and agility of business models is the main modern sign of success. As a result, entrepreneurship today transforms and changes its structure, strategy, culture, taking into account digital technologies. In terms of company size, it is clear that large organizations have a harder time making changes to the way they do business. Small and medium-sized companies are more adaptive and able to react faster to changing market conditions. This situation speaks of the greater digital potential of small and medium-sized businesses.

Small and medium-sized businesses contribute to the development of both digital and traditional economies. In many developed countries, such enterprises form more than 50% of GDP. At the same time, the materials of the domestic statistics service and foreign statistical organizations, such as the Organization for Economic Cooperation and Development, Eurostat have some differences in accounting for data on the activities of small and medium-sized enterprises (Eurostat, 2020; Rosstat, 2019) (See Table 1).

Table 1: Criteria for small and medium-sized businesses in Russia and the European Union

Practice	Criteria	Categories
Russia	Number of the company employees Income amount	Micro-enterprises (up to 15 people, annual income no more than 120 million rubles).
		Small businesses (16-100 people, annual income no more than 800 million rubles).
		Medium-sized enterprises (from 101 to 250 people, annual income no more than 2 billion rubles)
European Union	Number of company employees	1-9 people
		10-19 people
		20-49 people
		50-249 people

The materials presented in Table 1 indicate that the criterion for medium and small businesses in the European Union is only the number of employees (up to 249 people). In comparison, in Russia, it is the number of employees (up to 250 people) and its activities' cost indicator.

It should be noted that the number of employees in small and medium-sized businesses by main types of economic activity in Russia and the countries of the European Union can reveal the development trend of the small and medium-sized business sector (Eurostat, 2020; Rosstat, 2019) (See Table 2).

Table 2: Employees number in small and medium-sized enterprises by main types of economic activity in Russia and European Union countries

Economic activities	Russia				Europe Union			
	2017		2020		2017		2020	
	people	%	people	%	people	%	people	%
Mining	112500	0.7	119400	0.8	162811	0.22	159392	0.22
Production	2730000	17.2	2815600	17.8	15803020	21.48	15652340	21.32
Construction	2274400	14.4	2278200	14.4	10207021	13.88	10565016	14.39
Wholesale and retail trade	5295000	33.4	5174300	32.6	20726891	28.18	20391096	27.77
Transport and storage	1059600	6.7	1092500	6.9	5487904	7.46	5461291	7.44
Information and communication	599100	3.8	637900	4.0	3448472	4.69	3429067	4.67
The property	1488900	9.4	1515900	9.6	2198823	2.99	2201071	3.00
Professional, scientific, and technical activities	1330500	8.4	1269200	8.0	9113909	12.39	9185193	12.51
Administrative activities	946300	6.0	952900	6.0	6413222	8.72	6385592	8.70
Total for the year	15836300	100.0	15855900	100.0	73562073	100.0	73430058	100.0

The materials in Table 2 indicate that both in Russia and in the European Union countries, the largest number of employees work in small and medium-sized businesses in wholesale and retail trade (about 30% of employees), the smallest - in the extraction of minerals. Changes in the structure of employed small and medium-sized businesses by various economic activities in Russia and the European Union during 2017-2018 insignificant. The percentage increase in the number of employed in small and medium-sized enterprises was calculated (see Figure 2).

Based on the data presented, it can be concluded that at the enterprises of the Russian Federation related to small and medium-sized enterprises, the greatest increase in workers compared to the European Union was noted in the production of goods, transportation, real estate transactions, and administrative activities. Simultaneously, in European countries, a significant increase in the number of employees, relative to Russia, is noted in construction and the scientific and professional sphere. It is also worth highlighting that employment in small and medium-sized

enterprises in information and communication increased in Russia by almost 6.5%, while the number of employees in European companies decreased by 0.5%.

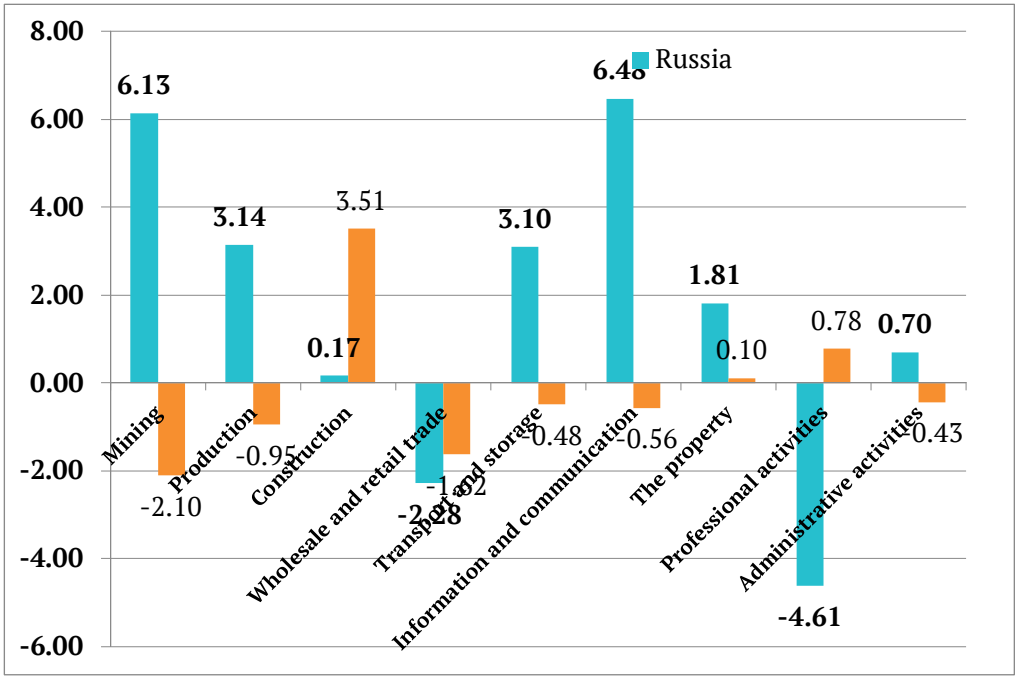

Figure 2: Increase the employees' number in small and medium-sized enterprises in the Russian and European Union (by type of economic activity), %

Thus, employment in small and medium-sized businesses in Russia and Europe testifies that information and communication companies' have high development potential. To ensure the competitiveness of their companies, European countries already in 2014 adopted the Horizon 2020 program, within the framework of which it was supposed to finance science, industry, and social projects (Børing et al., 2020). In 2021, the Horizon Europe program will come into force to support innovative research and socially significant areas (healthcare, digitalization, inclusion, etc.). There is active state support for small and medium-sized businesses in the Russian Federation to increase their national economy share. In 2018, a national project, "Small and Medium Enterprises and Support for Individual Entrepreneurial Initiatives," was developed, including improving business conditions, increasing concessional financing, information, digital support, etc.

In addition to the planned government influence on small and medium-sized businesses, there are other external uncontrolled factors of their development. One of those turned out to be a pandemic. In conditions of the self-isolation population, businesses had to adapt, which led to an increase in the digital transformation of their activities. Russian analysts conducted a study of the readiness of small and medium-sized businesses for the digital economy (Business Digitalization Index) through a survey of about 600 top managers and business owners, as well as comparison with the results of a similar survey in 2019 (NAFI, 2020) (See Figure 3).

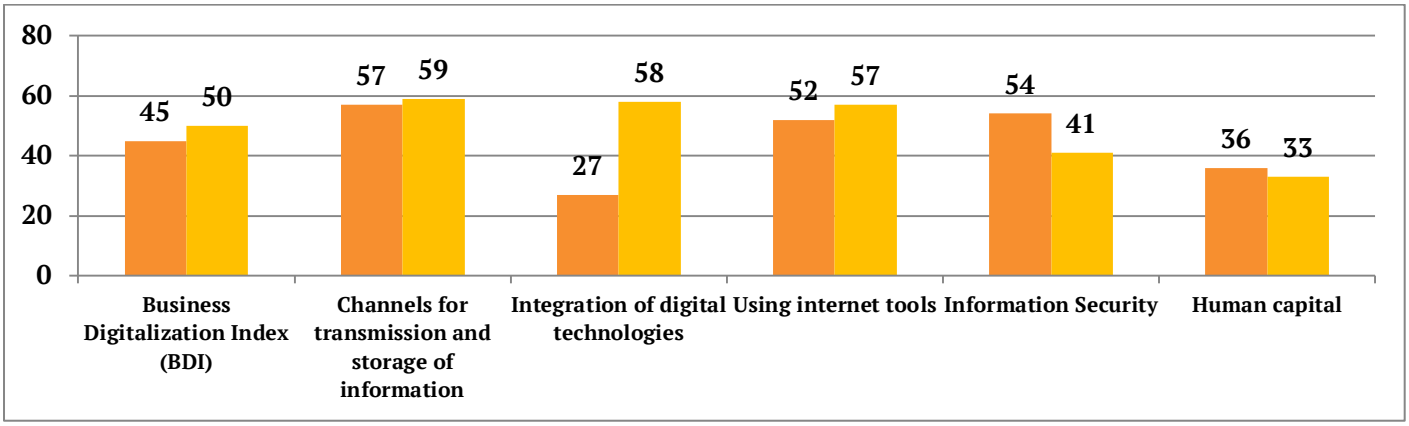

Figure 3: Index of business digitalization in Russia and its sub-indices for 2019-2020, calculated by the analytical center NAFI, % (Compiled based on the NAFI report).

Although the overall level of digital transformation has grown, there remain factors that impede the digital economy's development as a whole. For small and medium-sized enterprises, the lack of funds for implementing the digital business remains relevant. Also important is the traditional implementation of business processes. The owners of small and medium-sized companies are not interested in digitalization, and their employees are not competent in this matter.

As part of the BDI study, it is proposed to consider digitalization through 5 sub-indices contributing to digital culture formation in the enterprise. The implementation of the digital transformation strategy involves the use of specific software products and technologies. At the same time, digital tools and technologies can be viewed in a particular context of sub-index. So, enterprises use corporate mail, cloud storage, and automation programs, such as software products from Google, Yandex, and Cisco WebEx, for the transfer and storage of information.

Considering the introduction of digital technologies, the second private index involves ERP systems (Enterprise Resources Planning), electronic document management, artificial intelligence, and the Internet of Things. Examples implemented in various countries include systems from 1C, SAP, Oracle, Microsoft.

An important factor in digital transformation today is the marketing promotion of a product or service using Internet resources. Companies actively implement SEO (Search Engine Optimization), SMM (Social media marketing), and other techniques. Advertising remains the most effective way to promote. According to a study for this purpose, the most popular social networks are VK.com, Instagram, Facebook. In 2020-2021, TikTok is widespread, attracting small businesses with its availability in product promotion.

With the use of Internet tools, the risk of data loss and virus infection increases. In this regard, the fourth index is cybersecurity and the protection of physical information. Various antivirus programs, cryptography systems, DLP (Data Leak Prevention), firewalls, and other modern business technologies are used. However, as shown by the survey results, a fairly low percentage of small and medium-sized enterprises (maximum 40% of the total number of

respondents) prioritize this area. In the context of ubiquitous electronic accounting, such measures are not enough.

The fifth sub-index is increasing the competence in the field of digitalization of managers and employees of companies. There are programs and courses on the market from leading universities, companies, and online platforms. For example, MGIMO, St. Petersburg State University, Coursera, Sberbank, Skolkovo, KMDA offer their advanced training courses.

Thus, implementing the listed tools, techniques, and technologies at the enterprise forms a digital culture. The degree of its implementation and the use of current forms of such systems determine the digital potential of a particular company.

The practical significance of the considered sub-indices can be determined by using the expert method. For this purpose, it is worth taking 100% as the complete introduction of digitalization into the process, 0% as the complete absence of a parameter. Then the percentage transformation will make it possible to assess each factor. The result, expressed as a percentage, reflects a picture of compliance with an ideal, absolute enterprise.

In this study, the expert survey method was implemented to assess the digital potential of small and medium-sized enterprises. The survey of heads of business structures of medium and small businesses was carried out to study the factors of digital transformation, distributed over 5 sub-indices with the possibility of answering from 0 to 100, where 100 is the correspondence to the parameter or its presence, 0 is the factor is absent:

1. Transfer and storage of information (employees have a personal computer, use of corporate communications, the possibility of remote use);

2. Implementation of digital technologies (Internet accessibility, the use of the software by each employee, the use of mobile applications);

3. Marketing promotion of a product or service using Internet resources (website availability, promotion in VK.com, Instagram, Facebook, TikTok, 2GIS);

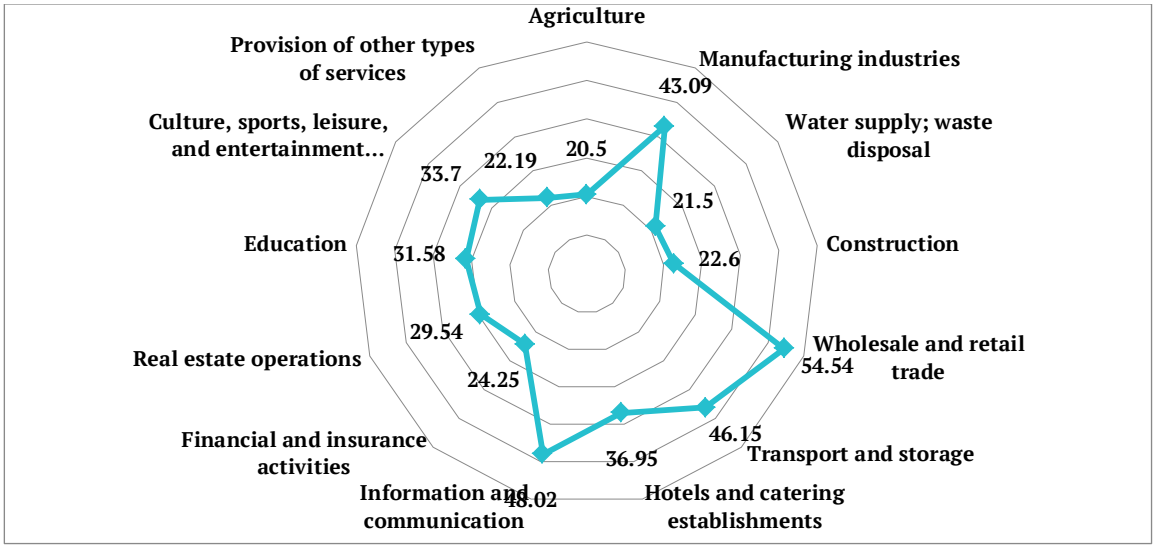

Figure 4: Sectoral index calculating results of digital potential for small and medium-sized businesses of Stavropol Region at the end of 2020, %

4. Cybersecurity and protection of physical information (the use of antivirus programs on each PC, special security programs, the presence of a cybersecurity department);

5. Competence in digitalization (the level of computer literacy, the level of learning, and readiness of employees to implement digital technologies).

In analyzing the digital potential of economic entities, it is possible to change the list of sub-indices, taking into account the current state of the studied area. The calculation of the indicators for each sub-index based on the expert survey results will reveal the digital potential of each organization. Based on the study, the sectoral index of the digital potential of small and medium-sized businesses in the Stavropol Region of the Russian Federation is represented in Figure 4.

Based on the results of calculating the sectoral indices of the digital potential of small and medium-sized businesses of the Russian Federation's constituent entity, the digital potential of companies engaged in wholesale and retail sales is the most formed in the Stavropol Region. Business entities are more mobile and adapt to the economy's changing digital conditions. Agriculture, water supply, and service industries have a low level of digital potential. Simultaneously, many enterprises are gradually introducing digitalization into business processes.

By the methods for assessing digital maturity (Acatech, 2018; SKOLKOVO, 2017; Forrester, 2017) and the digital potential index, Table 3 shows the maturity levels of small and medium-sized businesses.

Table 3: Assessment interpretation of digital maturity level for small and medium-sized enterprises depending on the digital potential index.

Maturity levels	Assessment, point	Digital potential index, %	Basic principles
Lagging behind	1	0-19	Classic business models. Low potential for digital transformation. Complete absence or weak development of technological solutions
Beginning	2	20-39	Introduction of common technologies into production mechanisms. Making management decisions based on an understanding of the need for digital development
Catching up	3	40-59	The gradual introduction of technologies into various business processes. Improving the digital competence of management. Knowledge base creation
Progressive	4	60-89	Technology adoption is directly related to the strategy & goals of the company. Training of employees in the field of digital transformation. Formation of a customer-oriented system
Leadership	5	90-100	A systematized unified knowledge base and a digital business model have been formed. Technologies provide a full cycle of production of goods or services. Comprehensiveness, customer-centricity. Own developments

Thus, the methodological provisions for calculating the digital potential index and assessing the digital maturity of economic structures make it possible to assess their readiness and prospects in the field of digitalization. The practical significance of such indicators is expressed in the possibility of performing interval calculations, which will allow forming a picture of the dynamism of the development of digitalization and enable managers and managers to analyze the company's strengths and weaknesses.

4 Conclusion

At the present stage of development, humanity is witnessing the transformation of almost all objects of life. The economic sphere has undergone significant changes. Traditional ideas about

business entities and their peculiarities can and should be transformed, taking into account the current and future conditions of activity.

The 21st century dictates the rules according to which the success of a business depends on its digitalization. Digital transformation is a multifaceted process of implementing technological solutions. Many large businesses around the world have reacted faster to changing conditions. Simultaneously, small and medium-sized businesses are on the way to forming a digital culture, which speaks of the problem of digital transformation and its potential. Assessment of digital potential is becoming a paramount task in ensuring digitalization of the company's business processes.

The developed methodology provides the possibility of assessing the digital potential of medium and small businesses based on calculating the integral indicator of digital potential. Interpreting the digital potential index allows you to determine the digital maturity level of a particular company and the industry as a whole, monitor changes in the digital economy, identify and develop potential growth points, and determine the immediate prospects for digital transformation.

The proposed methodological provisions for assessing digital potential will allow small and medium-sized companies to independently analyze their readiness for digital transformation, identify the strengths and weaknesses of their activities, and concretize the prospects for socio-economic development from the standpoint of increasing competitiveness in the modern market environment.

5 Availability of Data and Material

Data can be made available by contacting the corresponding author.

6 Acknowledgment

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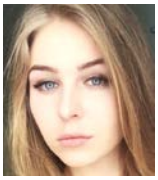

Dr.Valeria Deryzemlya is an Associate Professor, Department: Economic Security and Audit, Faculty of Economics and Management, North Caucasus Federal University, Russia. She got a PhD in Economics. Her research focuses on Analysis of economic activities, Risk Management, Risk Assessment, Controlling and Risk Management.

Dr.Anna Ter-Grigoryants1 is Professor at Department of Economic Security and Audit, Faculty of Economics and Management, North Caucasus Federal University, Russia. She holds a Doctor of Economics. Her research focuses on Analysis of economic activities, Risk Management, Risk Assessment, Controlling and Risk Management.