Applied Research of Digital Readiness of Retails

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Abstract: The paper contains a proposed methodology for determining the digital readiness of retail, which, unlike the known ones, allows managing the internal capabilities of digital transformation of enterprises in the FMCG retail segment. This technique has a number of advantages: data availability; ease of calculation; sufficiency and non-overloading of the attributes of the resulting feature; the possibility of using both in the process of primary self-diagnosis and at the control stage to determine the effectiveness of changes in the implementation of digital projects in retail. The proposed methodology involves the calculation of the integral index of digital readiness of retail enterprises, which is an indicator. It is based on morphological analysis and a formalized system of scoring share indices according to the selected components of internal capabilities for the digital transformation of an enterprise. The internal possibilities of digital transformation of retail are investigated in the context of management and support subsystems. The managerial subsystem of the digital readiness of the organization is formed by two groups of digitalization factors: the aspiration of the management staff and the presence of a digital strategy of the enterprise. The following factors are referred to the supporting subsystem: digital potential and digital culture of the enterprise. The parameters and attributes that characterize the internal capabilities of an enterprise in digital transformation in the context of the selected factors and subsystems are determined. A scale for interpreting the assessment of the level of internal digital capabilities for adapting an enterprise to the conditions of business digitalization is substantiated. The proposed methodology was tested on a representative quota sample of network FMCG segment objects, which included the largest retail operators in the region under study in terms of retail turnover. The results obtained made it possible to identify gaps in the management and support subsystems of the digital transformation of retail and offer a solution for managing the internal digital capabilities of the enterprises under study. It has been established that the main reason for the inhibition of digitalization processes is the weak will of managers and the lack of formation of digital thinking, lack of experience in developing and implementing a digital development strategy, limited financial resources, a weak level of digital skills of employees, as well as a lack of methods for assessing and managing digital transformation processes. The results obtained form the basis for discussions on industry-specific factors of business readiness for digital transformation. As well as the prerequisite for determining the directions of digital activity of network retailers, developing scenarios for digital business transformation.

Key-Words: Retail Business; digitalization of the economy; enterprise digital capabilities; digital strategy of the enterprise, digital business readiness.

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1 Introduction

Spreading global trends in digitalization, intellectualization and servicing of production, distribution, exchange and consumption have changed the paradigm of business management. The COVID-19 pandemic has exacerbated retailers'

problems with declining offline store traffic, disrupted logistics flows, and accelerated digitization throughout the value chain. Digital technologies have become drivers of product, organizational, marketing, logistics innovations, changed the methods of working with staff, customers and partners. Analysts at Boston Consulting Group (BCG) identify the positive impact of digitalization on the development of the labour market, health care, education [1]. Digitalization improves the existing processes in the organization, and digital transformation, in its turn, radically changes, reorganizes business processes, transforms or creates new qualities, properties of processes on the principle of "less money – more money – new money".

Digitization has become synonymous with the competitiveness of the subject no matter what market, whether the labour market (employee) or the consumer market (household, manufacturer, retailer) is meant. However, the digital economy is just emerging and has an uneven development. Regional, national economies and individual industries differ significantly in the level of digitalization and the depth of the digital divide in all aspects of its manifestation - geographical, technological, social, cognitive, and so on. Retail digitization took place in the second wave of the digital revolution after the IT sector, media market and banking. Traditionally, the retail sectors of the B2C (business-to-customer) sector show a higher level of digital maturity when compared to B2B (business-to-business). However, for the Ukrainian economy, the slowness of the digital transformation process is explained by a number of inhibitory factors. a number of external inhibitory factors. For example, the lack of high-speed Internet coverage, the high price of cloud computing services. Retail enterprises can only adapt to them, since they are unmanageable from the position of the subject. Therefore, the focus of this study is to identify manageable levers for managing the internal factors of digital readiness of retailers. Identifying digital readiness factors for the retail sector is the focus of this study.

2 Problem Formulation

The issues of digital transformation are interdisciplinary in nature and are the subject of research in various fields of science. The issues of conceptualization of the principles of digital transformation of the economy have been studied Van Veldhoven, Z. & Vanthienen [2]; Pizhuk [3]; Tsenzharik [4]; Veldhoven et al [5]; Little [6], which extensively presents the scientific discourse on the relationship between digitalization, digital transformation. The penetration of digital technologies in certain areas of activity is the subject of the following research: digitization of communication policy, omnichannel marketing Kannan et al [7]; Villanova [8]; trade marketing and organization of omnichannel sales, e-commerce (Zhehus [9]; Babenko et al [10]; Davydova et al [11]; management in the conditions of formation of Industry 4.0 (Nambisan et al [12]; Babenko [13]); the practice of organizational behaviour for sustainable development (Savytska et al [14]; Pyroh et al [15]); e-commerce, supply chains (Ilchenko et al [16]; other areas of economic activity [17].

Consulting companies and leading economic schools have made a significant contribution to the methodology for assessing the readiness of the economy for digital transformation. Among the most well-known indicators of digital transformation there are the following: Global Competitiveness Index [18]; Global Innovation Index (GII) [19]; Networked Readiness Index (NRI) (World Economic Forum) [20]; Digital Access Index (DAI) [21]; Broadband Penetration Index (ITU) [22]; World Digital Competitiveness (WDC) ranking [23]; Digital Economy and Society Index (DESI) [24]. These approaches are based on the index method; their use allows for comparative analysis.

The transition of business to digital technologies is assessed according to the KPMG (consulting agency) methodology as a model for assessing digital business aptitude (DBA). It is used to determine a company's readiness for digital transformation based on the evaluation of criteria defined by five components of digitalization: campaign strategy, information technology professionals, digitalization of internal processes, infrastructure and supply flexibility, target management [25].

Due to the implementation of this approach, the company's overall strategy is described in the context of seeing the role and benefits of digital technologies. A separate area evaluates and analyzes the existing approaches to the formation of personnel policy, in particular regarding the search, selection, maintenance, training and retraining of specialists in the field of digital technologies. Evaluating the digitization of internal processes, criteria are used that characterize the level of use of customer experience to create a product. Also, the use of optimized platforms that allow for 24/7 service from any device anywhere;

the state of development and flexibility of processes, as well as the presence of constant measurements and analytics. The criteria for assessing the flexibility of infrastructure and supply determine the level of response of the enterprise and its structures to digital technologies, readiness to take swift action in response to constant change. Evaluation of the criteria of target management enables to identify the level and compliance with the challenges of the measures taken in the direction of restructuring management at the corporate level in order to focus on support.

An alternative to the DBA (digital business aptitude) is the benchmark model for determining digital maturity Forrester 4.0. It is more general and provides an opportunity to assess the level of readiness of the enterprise for digital transformation on the basis of general criteria specific to any enterprise, different industries, sizes, scales of activity [26]. The model includes a set of criteria: the level of use of digital technologies to increase competitiveness, ensuring the operation of the enterprise based on customer experience and creating flexibility of the enterprise. Unlike the DBA (digital business aptitude) model in the Forrester 4.0 model not only the directions which should be adapted to requirements of the digital enterprise are allocated, but also the levels (stages of maturity) are defined. These stages have certain characteristics regarding the success of using the benefits of digitization. The results of the assessment determine the relevant conditions in the following areas: culture, organization, technology, analytics. According to the scale of assessing the level of digital maturity, the company can be defined as an innovator, advanced, follower, sceptic. Accordingly, the highest level of digital maturity is inherent in innovative enterprises, and the lowest - in sceptics.

Acatech has developed an Industry Maturity Index of 4.0. [27]. The concept of Industry 4.0 maturity index model lies in the fact that each stage is based on the previous one and describes the characteristics needed to achieve it, as well as the potential benefits for the company. Cultural and organizational change is closely linked to technological components, enabling flexibility, which is a key feature of transformation. The authors propose a six-stage model of digital maturity, which analyzes the characteristics of such areas as resources, information systems, culture and structure. According to the main ideas of gradual digital development, it is important to go forward. The path of development begins with digitalization, which provides the basic requirements for the implementation of Industry 4.0 - these are informatization and connectivity. Then the following steps required for Industry 4.0 are clarity, permeability, predictability, self-correction. Determination of Industry Maturity Index 4.0. occurs within certain functional areas: development, production, logistics, service, marketing and sales. For each functional area, a concept is presented that illustrates the features that characterize flexible, adaptive companies that are constantly evolving.

In the process of determining the maturity index of Industry 4.0. structural areas, functional areas and stages of development are combined to determine the overall maturity of the production company and the maturity of individual functional areas. After establishing the current stage of maturity of the company, an action plan for digital transformation is developed, which describes specific measures in a certain sequence for both functional and structural areas. A characteristic difference of this model is its focus on the formation of the company's ability to constantly develop, flexibly, quickly and continuously adapt to change, including taking into account changes in customer needs.

A well-known model for assessing digital maturity is a model of radar based on the Digital Transformation Index, developed by the analytical agency Arthur D. Little Digital Transformation [6]. Evaluation is carried out in the following areas: Strategy & Governance; Products & Services; Customer Management; Operations & Supply Chain; Corporate Services & Control; Information Technology; Workplace & Culture. In contrast to previous researchers, the manifestations of digitalization in products and services offered for the market are analyzed.

The model of digital maturity assessment of S. Savchuk [28] deserves attention. The author determines the level of digital maturity in 6 areas of enterprise activity: strategy, personnel, structure, technologies, marketing, organizational culture, for each of which attributes are defined. Collection of information involves the development of a questionnaire with a list of relevant questions for each of the 6 identified activities of the enterprise. In total, the questionnaire includes 61 questions, the answers to which provide for evaluation on a 5-point scale, which allows based on the calculations to quantify the state of digital maturity of the enterprise for each component. However, this approach does not provide a formalized scale for identifying states to determine a specific assessment for each attribute, which complicates

the assessment process and increases the subjectivity of assessment. I. Strutynska proposed a different scientific and methodological approach to determining the index of digital transformation of business structures. Its essence lies in the polystructural combination of 4 groups of indicators: informative data; digital literacy of human capital; digital tools to support business processes; digital infrastructure [29]. This method allows you to determine the potential of digital maturity and the readiness of a business to introduce digital technologies into practice.

According to O. Pizhuk's methodology [3], digital transformation assessment is based on three key aspects of digital transformation: the presence of prerequisites for digital transformation (readiness), the level of integration of digital technologies into key areas of activity and the effectiveness of digital transformation (economic, social consequences). Approbation of this methodology was based on an analytical assessment of statistics and expert surveys conducted by international organizations [30].

The developed methodological tools are aimed mainly at determining the digital maturity of the organization in order to identify its current state and determine the priorities of digital transformation.

3 Problem Solution

3.1 Research Methodology

In order to determine the internal opportunities for digital transformation at the level of organizations, a methodology for studying the digital readiness of retail chains is proposed. It provides for the calculation of an integrated index of readiness for digital transformation of the retail enterprise, taking into account the available internal digital capabilities. Based on the content analysis of methods for assessing digital maturity, the key components that characterize the company's readiness for digital transformation and form internal digital capabilities are identified: the desire of management, digital potential, digital culture and digital strategy, which together characterize the digital capabilities and aspirations of the enterprise to the introduction and development of digital technologies (Fig. 1).

The method of morphological analysis for each component is used. The parameters and attributes that characterize them are determined (Table 1). For high digital readiness, it is important that the parameters have the maximum value, so the mathematical model of digital readiness has the form:

$$DR = \left(DM(dm_1 \dots dm_3), DP(dp_1 \dots dp_{10}), DC(dc_1 \dots dc_4), DS(ds_1 \dots ds_3)\right) \rightarrow max, \quad (1)$$

where DR is digital readiness indicator;
DM – digital intentions of the enterprise management;
DP – digital potential of the enterprise;
DC – digital culture of the enterprise;
DS – digital strategy of the enterprise.

The digital intentions of the top management and digital strategy form the management subsystem of digital transformation, and the digital potential and digital culture – the providing one.

A 5-point scale was used to assess the company's readiness for digital transformation. The data were obtained by interviewing managers, as well as by observation. An index method was used to process the results. In order to formalize the qualitative assessments developed a scale given in Table 1.

Table 1. Formalization of the scale of scoring on the attributes of digital readiness of the enterprise

Partial indexes min	Parameters	Attributes	Conventional sign	Formalization of score	
				min (1 score)	max (5 score)
1	*2*	*3*	*4*	*5*	*6*
Intentions of top management (DM)	Digital vision of top management	Digital thinking of the top management	dm_1	Lack of understanding of the need, benefits, opportunities of digital technologies	Absolute understanding of the need, benefits, opportunities of digital technologies

1	*2*	*3*	*4*	*5*	*6*
		Initiation of digital changes	*dm2*	Lack of initiatives for the introduction and development of digital technologies	Adequacy of initiatives for the introduction and development of digital technologies
		Recognition of priority / perceptiveness / necessity / flexibility	*dm3*	Misunderstanding of priority / prospects / necessity	Absolute recognition of priority / perspective
Digital culture (DC)	Digital values in the organization	Training and promotion of digital transformation in the internal environment of the organization	dc_1	Low level of education and promotion of digital transformation	High level of education and promotion of digital transformation
		Digital thinking of employees	dc_2	Absolutely not formed digital thinking of employees	Digital thinking formed at a high level
		Employee involvement in digital transformation and their cohesion	dc_3	Low level of involvement and cohesion of employees	High level of involvement and cohesion of employees
		Implementing flexible digital communications in working groups	dc_4	Lack of flexibility	Sufficient flexibility
Digital potential (DP)	staff	Availability of specialists in modern ICT	dp_1	Absence of specialists in modern ICT	Availability of specialists in modern ICT
		Sufficiency of specialists in modern ICT	dp_2	Lack of specialists in modern ICT	Sufficiency of specialists in modern ICT
		Qualification of specialists in modern ICT	dp_3	Low, does not meet the needs	High, meets the needs
		Digital skills of employees in other fields / professions	dp_4	Unformed digital skills of employees in other fields / professions	Sufficiently formed digital skills of employees in other fields / professions
	funding	Adequacy of financing digital transformation	dp_5	Insufficient funding for digital transformation	Funding at the appropriate level according to needs
		Opportunities for financing digital transformation	dp_6	Limited financial resources for digital transformation	Sufficient financial opportunities for digital

1	2	3	4	5	6
					transformation
	digital infrastructure	The level of material ensuring digital transformation	dp_7	Low level of material ensuring digital transformation	High level of material ensuring digital transformation
		Possibilities of digital transformation with the available material and technical base (MTB)	dp_8	Low possibilities of digital transformation with the available material and technical base	Sufficient possibilities of digital transformation with the available material and technical base
	digital awareness	Use of verified, correct data in real time	dp_9	Lack of real-time data collection and processing tools	Adequacy of real-time data collection and processing tools
		Monitoring and analysis of digitalization trends	dp_{10}	Not held at all	Are held regularly
Digital strategy (DS)	Digital positioning in the market	Availability of a digital transformation plan	ds_1	Lack of a digital transformation plan	The digital transformation plan is developed, adjusted and implemented
		Digital density of formation of consumer value of the retailer brand	ds_2	An outsider in terms of digital density	A leader in digital density
		Speed of response to changing digital capabilities	ds_3	Passive character	Active character

Source: developed by the authors

Given the multicomponent nature of the digital readiness indicator, partial indices of aspiration of management staff, digital potential, digital culture and digital strategy and an integrated readiness index are proposed (Fig. 1).

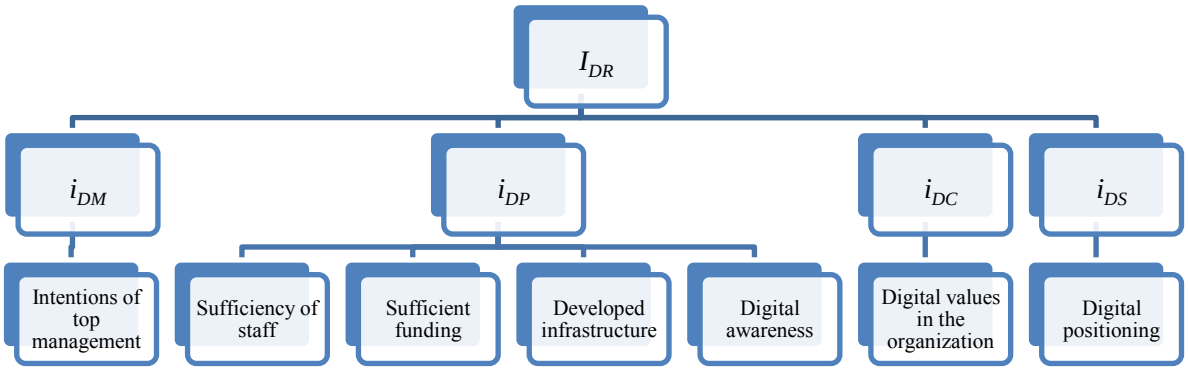

Fig. 1: Index system for determining the digital readiness of the organization
Source: developed by the authors

Partial indices for each component are calculated as follows:

$$i_{DM} = \frac{\sum_{i=1}^{n} b_{dm_i}}{n \times 5}, \quad (2)$$

where i_{DM} is the partial index of the intentions of top management;
b_{dmi} is the score evaluation of the i-th attribute of the parameter of the intentions of top management;
n=3 is the number of attributes of the DM parameter.

$$i_{DP} = \frac{\sum_{i=1}^{n} b_{dp_i}}{n \times 5}, \quad (3)$$

where i_{DP} is the partial index of digital potential;
b_{dpi} is the score evaluation of the i-th attribute of digital potential;
n=10 is the number of attributes of the DP parameter.

$$i_{DC} = \frac{\sum_{i=1}^{n} b_{dc_i}}{n \times 5}, \quad (4)$$

where i_{DC} is the partial index of digital culture;
b_{dci} is the score evaluation of the i-th attribute of digital culture; n=4 is the number of attributes of the DC parameter.

$$i_{DS} = \frac{\sum_{i=1}^{n} b_{ds_i}}{n \times 5}, \quad (5)$$

where i_{DS} is the partial index of the intentions of top management;
b_{dsi} is the score evaluation of the i-th attribute of the parameter of the intentions of top management; n=3 is the the number of attributes of the DS parameter.
To determine the integrated index of readiness of the enterprise for digital transformation, it is recommended to use the geometric mean:

$$I_{DR} = \sqrt[4]{i_{DM} \times i_{DP} \times i_{DC} \times i_{DS}}, \quad (6)$$

where I_{DR} is the integrated index of enterprise readiness for digital transformation;
i_{DM}, i_{DP}, i_{DC}, i_{DS} are partial indices of the relevant components.
To determine the level of readiness of retail enterprises for digital transformation, an interpretation scale is proposed, given in table 2.

Table 2. Scale of interpretation of values of partial and integral indices of readiness of the retailer for digital transformation

Values of partial and integral index	Level of readiness for digital transformation	Internal digital capabilities
0,01< I_{DR}<0,25	Zero	Absent
0,25< I_{DR}<0,5	Low	Limited
0,50< I_{DR} <0,75	Medium	Insufficientl y formed
0,75<I_{DR}<1	High	Powerful

Source: developed by the authors

3.2 The research Results

Internal digital opportunities for adaptive digital behaviour are determined depending on the level of readiness of the enterprise for digital transformation. The study of readiness for digital transformation of retail enterprises in the FMCG (Fast Moving Consumer Goods) sector was conducted in February-March 2021. The sample included 175 objects of network retail. All of them are market leaders in the FMCG sector of the Kharkiv region: «Sil'po», «ATB», «CHudo Market», «Rost», «Klass», «Posad», «Tavriya B», «Vostorg», «SPAR», «VelMart». Based on the results of the expansion, the profit margin of these operators in the market will become more than 80% in the retail turnover of the FMCG sector in Ukraine (Kharkiv region). The method of online survey of employees of the retail network management staff was chosen for the research. The reliability of the results obtained is confirmed by the representativeness of the quota sample with a high density of homogeneity of the objects of study in accordance with the objectives of the study, which ensured a sufficient level of reliability (0.95) of the results.
Using the proposed methodology, the readiness of retail networks of the sample for digital transformation was assessed. The results of the calculations are presented in Fig. 2-5, table 3.

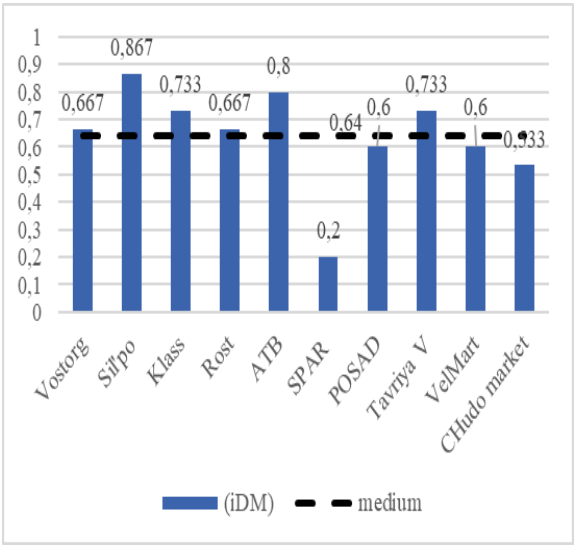

Fig. 2: Profile of the partial index of desire of the management apparatus (iDM) by sample (n=175 objects)
Source: according to the results of studies of the sample

On average, in the sample of enterprises, all partial indices and the integrated index correspond to the average level. This means that the available digital

capabilities of retailers need resources to bring them to a level adequate to the needs for further digital transformation.

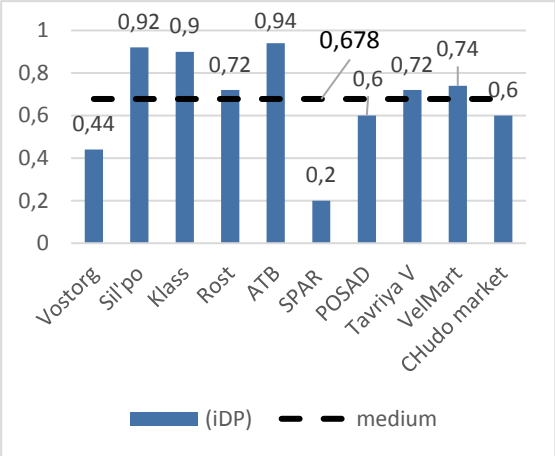

Fig. 3: Profile of the partial index of digital potential by the sample (n=175 objects)
Source: according to the results of studies of the sample

It should be noted that partial indices of digital potential (Fig. 3) and digital strategy (Fig. 6) have higher values compared to partial indices of aspiration of the leadership (Fig. 2) and digital culture (Fig. 4).

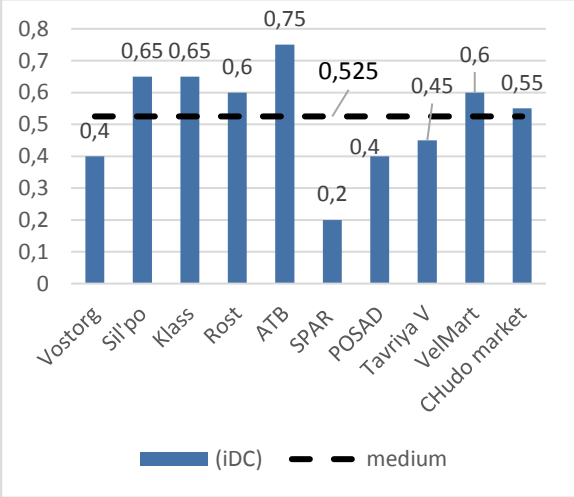

Fig. 4: Profile of the partial index of digital culture in the sample (n=175 objects)
Source: according to the results of studies of the sample

The study identified the need for additional efforts to form a digital culture, the partial index of this parameter is the smallest and is on the border of medium and low level.

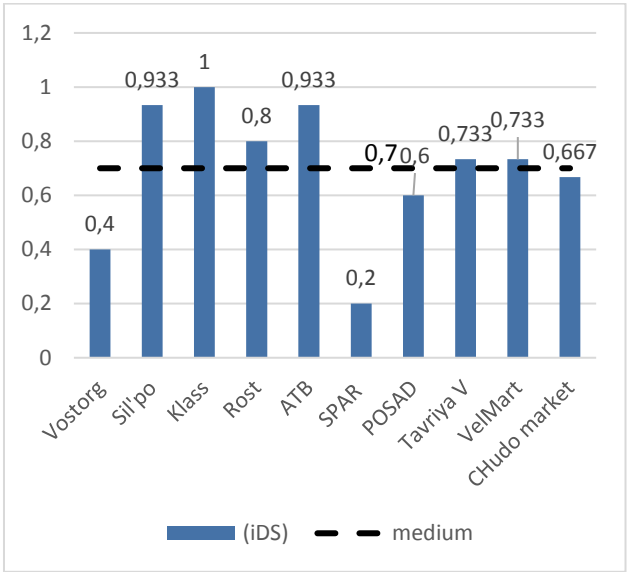

Fig. 5: Profile of the partial index of the digital strategy for the sample (n=175 objects)
Source: according to the results of studies of the sample

Among the studied supermarket chains, the group with a high level of digital readiness included the networks «ATB», «Sil'po», «Klass», which accounted for 30% of the sample, the integrated index of digital readiness of which was 0.809-0.852 (Table 3). According to the proposed scale of interpretation, their digital readiness is determined to be quite high.

Table 3. Characteristics of the level of digital readiness of samplers

Supermarket chains	Integrated index of digital readiness (IIDR)	Digital readiness level	Internal digital capabilities available
ATB	0.852	High, 30% of the sample	Internal digital capabilities are powerful. Allow to accelerate the processes of digital transformation, increase the level of digital technology, strengthen digital leadership in the regional market
Sil'po	0.834		
Klass	0.809		
Rost	0.693	Medium, 50% of the sample	Internal digital capabilities are formed, need further efforts to strengthen them to accelerate the process
VelMart	0.665		

Supermarket chains	Integrated index of digital readiness (IIDR)	Digital readiness level	Internal digital capabilities available
Tavriya V	0.646		of mastering digital technologies
CHudo Market	0.585		
POSAD	0.542		
Vostorg	0.465	Low, 10% of the sample	Internal digital opportunities for adaptive digital behavior in the context of digital transformation are limited and hinder the further development of digital technologies, require radical decisions to find ways to increase them
SPAR	0.2	Zero, 10% of the sample	Internal digital opportunities for adaptive digital behavior in the context of digital transformation are absent, make it impossible to master digital technologies, require radical solutions to enhance adaptive digital behavior
On average	0.632		

The internal digital capabilities of these networks are characterized as powerful. This level allows to accelerate the processes of digital transformation, increase the level of development of digital technologies, to introduce innovative digital technologies. Such a trajectory of development belongs to digital leadership in the regional market. These networks have the highest partial index of digital potential, which exceeds 0.8. They are sufficiently equipped with qualified IT specialists, have the appropriate material and technical base, sufficient financial opportunities for the introduction and development of digital technologies.

However, for further digital transformation with a focus on innovative digital technologies, it is necessary to strengthen the digital potential of all components, especially financial and human. The digital readiness of supermarket chains «ATB», «Sil'po», «Klass» is significantly enhanced by the presence of a digital strategy, which was noted by representatives of the management staff. However, assessments of the level of digital technology development show certain problems in its implementation, which highlights the need to develop and implement a new strategy of digital adaptive behavior, taking into account the existing internal digital and external digital capabilities.

The group of chains retail with a medium level of digital readiness includes «Rost», «VelMart», «Tavriya B», «Chudo Market», «POSAD», and the integrated index of their digital readiness fluctuates at the level of 0.542-0.693. Their internal digital capabilities are limited and require significant efforts to adjust them to all components of the digital readiness model (1). To accelerate the digital transformation of the studied networks, catch up with digital leaders, it is necessary to: form digital thinking and management initiatives for the development and implementation of strategy, development of digital skills and employee involvement; strengthening digital capacity, development and implementation of digital strategy.

The results of the analysis revealed a low level of digital readiness in the chain «Vostorg», the integrated index was 0.465. Internal digital capabilities are almost non-existent and hinder the achievement of the appropriate level of digital technology development. Therefore, quick and radical solutions are needed to increase digital readiness to intensify digitalization processes and overcome the digital gap.

A situation that requires radical changes is observed in the «SPAR» chain. The digital readiness index was only 0.2, i.e. the retailer is at zero level of digital transformation. Internal digital capabilities are not disclosed and make it impossible to master digital technologies. Under such conditions, radical decisions are needed to build digital capabilities and increase digital readiness to overcome the digital failure.

The development of innovative digital technologies creates new digital opportunities, the use of which requires a review of business models and business processes. Improving them through the introduction and development of digital technologies will provide competitive advantages, increase efficiency, productivity and productivity of market participants.

4 Conclusion

As a result of the content analysis of the existing methodological support for assessing the digital maturity of organizations, the gained world experience is generalized and the following conclusions are made. The analysis of digital maturity is carried out in order to diagnose problems and find recommendations for their solution. Among the known methods, the vast majority is based on methods of scoring the results of a survey of managers / employees of enterprises. Differentiation of complexity of methodologies is caused by a variety of quantity and structure of the estimated attributes.

In order to improve the diagnostics of digital readiness assessment, a methodology for an integrated index of digital readiness in the field of retail has been developed. This technique has a number of advantages: 1) is based on observable elements that characterize the key factors affecting the ability and readiness of retail for digital transformation; 2) these factors are grouped into 2 manageable subsystems: management, which includes the desire of management personnel to digitalize the business and the presence of an adequate digital strategy. And also providing, including the existing digital potential and digital culture of the organization. This technique has a number of advantages and includes key components that characterize the ability and readiness of retail for digital transformation: the desire of management, digital potential, digital culture and digital strategy.

The method is based on a formalized scoring system, which determines the ease of use. The index method used is publicly available. Information is collected by interviewing employees of the management and surveillance staff, desk research. Allows you to identify bottlenecks in shaping the readiness of an enterprise for digital business transformation, both in terms of certain parameters of the management and support subsystems, and in terms of selected attributes of business digitalization. This allows you to manage internal capabilities to maximize your business's digital readiness level. The methodology can be used in the process of primary self-diagnosis and later - at the control stage to determine the effectiveness of changes in the implementation of digital projects.

According to the results of the research, digital opportunities and factors inhibiting the digital transformation of retail operators have been identified. It is established that the main reason for slowing down digitalization processes is the weak will of managers and the lack of digital thinking, lack of experience in developing and implementing digital development strategies, limited financial resources, weak digital skills of employees, and lack of evaluation and management of digital transformation.

The results obtained form the basis for discussions on industry-specific factors of business readiness for digital transformation. They can also become the basis for determining the directions of digital activity of network retailers, developing scenarios for digital business transformation.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

-Nataliia SAVYTSKA has idea conceptualization and design of methodology.
-Olena ZHEHUS has created models.
-Hanna CHMIL has formal data analysis and validation of results
-Nataliia UCHAKOVA has carried out the modelling.
-Tetiana ANDROSOVA has implemented the model on statistical data.
-Olha PRIADKO has implemented the model on statistical data.