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Tax Incentives for Intellectual Transformation of Companies

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ABSTRACT

The subject of this study is the tax incentives that promote the intellectual transformation of Russian companies. The objective of the article is to assess the role of stimulating tax policy in ensuring the intellectual transformation of business. Research methods include qualitative analysis of tax incentives, correlation and regression analysis (including assessment of autocorrelation, multicollinearity, and heteroscedasticity), structural analysis, analysis of dynamic time series, tabular, and graphical methods of data visualization. The study conducted an inventory and systematization of tax incentives that promote the intellectual transformation of companies. Three groups of tax incentives were identified: (1) incentives aimed at supporting the infrastructure for the intellectual transformation of a company; (2) innovation incentives, and (3) investment-oriented tax incentives. Within the framework of the analysis of the theoretical aspects of the influence of tax incentives on the intellectual transformation of companies, four areas of such influence have been identified. The impact of tax incentives on the intellectual transformation of business through direct and indirect channels has been assessed. A positive indirect (peripheral) impact of taxes on digital transformation through the development of the information and telecommunication technology sector has been revealed, while the direct impact of fiscal incentives on business digitalization processes has not been proved statistically. The scientific novelty of this study lies in the development and testing of the author's methodology for assessing the direct and indirect impact of tax incentives on the intellectual transformation of companies, based on the use of correlation and regression analysis.

Keywords: tax incentives; innovation benefits; investment benefits; regression analysis; correlation; business digitalization; benefit effectiveness; depreciation; investment tax deductions

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INTRODUCTION

The global development of the digital economy is accelerating, which is crucial for the reshaping of universal factors of production [1], the restructuring of the global economic system and the changing competitive landscape. Achieving technological independence through the use of advanced digital production technologies is a top priority for the Russian Federation. This is reflected in the country's legislation. In particular, digital transformation of the economy has been identified as one of the key national goals in the Unified Plan for achieving the national development goals of the Russian Federation until 2030, and beyond that, until 2036. The Strategy of Scientific and Technological Development of the Russian Federation (approved by Decree of the President of the Russian Federation dated 28.02.2024 No. 145) highlights the transition to advanced technologies based on the use of intelligent manufacturing solutions, robotic and high-performance computing systems, the results of processing large amounts of data, machine learning technologies and artificial intelligence as priority areas. Thus, the intellectual transformation of Russian companies appears to be essential in the context of ensuring the technological sovereignty of the Russian Federation. In this study, this concept is understood as a structured business investment initiative that involves human-machine interaction and the integration of hardware and software. Therefore, the intellectual transformation of companies can be seen as synonymous with digital transformation.

The transformation of the digital economy within enterprises involves optimizing production processes and monitoring various aspects of procurement, production, inventory, capital, energy consumption, and equipment condition. This allows enterprises to solve complex problems and improve product quality through innovation [2]. However, the transformation of corporate digital intelligence requires a comprehensive investment strategy that encompasses upgrading technology and equipment, implementing digital management systems, reorganizing human resources, and restructuring business models.

In today's economic climate, the intellectual transformation of businesses requires a significant investment of resources, and it also carries the risk of unsuccessful implementation of digital technologies. Therefore, governments in different countries are using various financial support measures to encourage businesses to digitalize their processes. In scientific research, several tools have been identified as priorities for government support of digital business transformation, including tax incentives, public investment in IT technologies, and institutional support for digitalization [3, 4]. Tax benefits can take various forms, such as exemption from taxation on technology transfer operations and preferential tax rates for technologically advanced companies [5], additional deductions for research and development expenses and accelerated depreciation of fixed assets due to technological advancements and equipment upgrades [6].

In this study, we aim to use the author's methodology to assess the role of tax policy in promoting intellectual business transformation and to identify promising areas for developing the Russian tax system to contribute to the digital transformation of companies. To achieve this goal, we have defined the following set of tasks:

1) To inventory and systematize tax benefits that contribute to the intellectual transformation of companies.

2) To investigate the theoretical aspects of the impact of tax incentives on the intellectual transformation of businesses.

3) To assess the impact of tax incentives on business and propose directions for the development of a modern tax policy in Russia, taking into account the intellectual transformation of companies as a key factor.

MATERIALS AND METHODS

The impact of tax incentives on the intellectual transformation of a business can occur both directly and indirectly. In this study, we assess the impact indirectly through the development of information and communication technologies (ICT). In particular, we use correlation and regression analysis to assess the relationship between the volume of tax benefits received by each taxpayer and the gross value added (GVA) generated by the ICT sector for each employee in the sector, as well as the share of GVA in gross domestic product (GDP) for the entire ICT sector. Due to the fact that the places of the variables in the regression model do not change, the statistical significance of the relationships (*t*-statistics and *F*-statistics) remains unchanged. In a multifactorial model, tax benefits serve as dependent variables, and indicators of the ICT sector serve as independent variables.

The direct impact of tax benefits is assessed by comparing the volume of benefits received by taxpayers with the gross costs incurred by organizations for the development of the digital economy. This analysis also considers the share of these costs in GDP. Due to the fact that the data presented for the period 2009–2023 are used to assess indirect interactions, the first model is constructed in the form of multiple regression. However, business expenditure indicators for the development of the digital economy are only presented for 7 years (2017–2023), so the assessment of direct impact will be done by constructing two one-factor regression models, based on the requirement of data sufficiency. Since the analysis method used is based on the least squares method (OLS), it is necessary to check each model for compliance with the most important prerequisites of OLS (absence of autocorrelation and heteroscedasticity of residues).

Estimating the value of tax benefits requires a preliminary analysis, as not all incentives contribute (even indirectly) to the intellectual growth of companies. Current tax incentives can be categorized into three groups:

The first group of benefits is aimed at supporting the company's intellectual infrastructure transformation. This includes tax incentives for industries that form the basis of digital business transformation, such as the IT and electronics industries.

The second group consists of innovation-oriented incentives, which are applicable to all companies regardless of their type of activity or participation in digital transformation.

The most numerous *group is the third,* which includes investment-oriented benefits that help to grow the sources of financing for companies' digital transformation. These benefits are listed in more detail in *Table 1*.

The systematization of tax incentives has revealed that the Russian tax system currently offers a diverse range of measures to encourage the digital transformation of businesses. These measures vary depending on the type of tax (set at the federal, regional, and local levels), as well as the channels through which they are implemented.

In particular, two types of channels of influence should be considered: direct and indirect. The benefits from the direct channel have a direct impact on the company undergoing transformation. These include, for example, a 2% increase in expenses for the purchase of domestic electronics and software for corporate income tax, as well as federal and regional investment tax deductions. Indirect tax incentives aim to support the infrastructure for digital transformation, as well as R&D activities that can form the basis for this transformation. Given the wide range of benefits and the priority of digitalizing the economy and businesses, it is relevant to assess the impact of fiscal incentives and their role in this process.

The initial data for simulation are presented in *Table 2*.

Table 1

Tax Incentives to Promote the Intelligent Transformation of Companies

Benefits group	Tax	Benefit	Basis (TC RF)
Intellectual transformation infrastructure support	Corporate income tax	Lower tax rate for IT companies	PARA. 1.15 art / 284
		Reduction of the tax rate for companies operating in the field of radio electronics	PARA. 1.16 art / 284
	Insurance premiums	Reduced insurance premium rates for IT companies	Subpara. 3 para. 1 art / 427
		Reduced insurance premium rates for companies operating in the field of radio electronics	Subpara. 18 para. 1 art / 427
	VAT	VAT exemption for the sale of domestic software included in the register	Subpara. 26 para. 2 art / 149
	Corporate property tax	Exemption from taxation of property of organizations of the power supply system	PARA. 21.1 para. 21.2 art / 381
Innovation support	Corporate income tax	Reduced rates for small technology companies included in the register	PARA. 1.8.-5 art / 284
		Reduced rates for residents of Skolkovo and science and technology centers	PARA. 5.1 art / 284
		Increased depreciation factor 3 for fixed assets used for R&D	PARA. 2 art/ 259.3
		Increasing ratio to R&D expenses	PARA. 7 art / 262 TC / РФ
		Investment tax deduction for expenses as a contribution to an investment partnership, whose activities are aimed at making venture and direct investments in small technology companies	Subpara. 10 para. 2 art/ 286.1
		Regional investment tax deduction for R&D expenses	Subpara. 6 para. 2 art/ 286.1
	Insurance premiums	Reduced insurance premium rates for companies of business entities and partnerships whose activities consist in the application of R&D	Subpara. 1 para. 1 art / 427
		Reduced tariffs for residents of Skolkovo and science and technology centers	Subpara. 10 para. 1 art / 427
	VAT	Exemption of operations for the realization of intellectual property results	Subpara. 26.1 и Subpara. 26.2 para. 2
		Exemption of R&D operations	Subpara. 16, Subpara. 16.1 para. 3 art / 149
	Corporate property tax	Liberation of the property of state scientific centers	PARA. 15 art/ 381
		Release of property of residents and management companies of Skolkovo and scientific and technological centers	PARA. 19, para. 20, para. 27, para. 28 art / 381
	Personal income tax	Personal income tax exemption for citizens within the framework of grants (according to the list)	PARA. 6.1 art/ 217
Investment support	Corporate income tax	Reduced income tax rates for organizations that are residents of zones with preferential taxation (SEZ, SEZ, TOP, SPIC, RIP)	Art / 284
		Federal Investment Tax Deduction	Art / 286.2
		Regional investment tax deduction	Art / 286.1
		Increasing coefficients to the depreciation rate	PARA. 1 и para. 2 art / 259.3
		Depreciation premium	PARA. 9 art / 258
		An increasing factor of 2 to the cost of purchasing domestic electronic products and software	PARA. 1 art / 257
	Insurance premiums	Reduced insurance premium rates for organizations that are residents of zones with preferential taxation (SEZ, SEZ, TOP, SPIC, RIP)	Art / 428
	VAT	Exemption from VAT on transactions of an investment nature (contributions to the authorized capital, investment partnership, etc.)	PARA. 2 art / 146
	Corporate property tax	Release of property of SEZ residents and management companies	PARA. 17 art / 381
		Release of property having a high energy efficiency class (according to the list)	PARA. 21 art / 381

Source: Compiled by the authors.

Table 2

Initial Data for Modeling the Impact of Taxes on the Digital Transformation of Companies

Year	Amount of tax benefits per taxpayer, in thousand rubles	Data for multiple regression (indirect effect assessment)		Data for paired regression (direct effect assessment)	
		GVA of the ICT sector per 1 employee of the ICT sector, in million rubles	ICT sector GVA, as % of GDP	Organizations' expenditures on digital economy development, in billion rubles	Expenditures on digital economy development, as % of GDP
2009	54.76	0.99	3.8	–	–
2010	67.03	1.04	3.4	–	–
2011	289.57	1.22	3.3	–	–
2012	387.91	1.37	3.4	–	–
2013	344.29	1.47	3.4	–	–
2014	486.43	1.65	3.1	–	–
2015	1745.47	1.62	2.6	–	–
2016	1386.81	1.65	2.6	–	–
2017	1126.82	1.8	2.7	1739	3.6
2018	1194.89	2.07	2.6	1953	3.6
2019	674.87	2.38	2.9	2453	3.7
2020	824.00	2.6	3.4	2262	3.8
2021	782.37	2.90	3.1	2947	3.6
2022	1694.47	3.27	3	3199	3.3
2023	1177.69	3.87	3.5	3294	3.2

Sources: Compiled by the authors based on the data: 1) Abashkin V.L., Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. et al. Compiled by the authors based on data from Digital economy: 2024: a brief statistical digest. Moscow: ISSEK HSE; 2024. 124 p.; 2) Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. et al. Digital economy indicators: 2019: a statistical digest. Moscow: ISSEK HSE; 2019. 248 c.; 3) Abashkin V.L., Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. et al. Digital economy indicators: 2025: a statistical digest. Moscow: NRU HSE, 2025. 296 p.; 4) statistical reporting forms of the Federal Tax Service of Russia 1-NDS, 5-P, 5-NIO for 2009–2023.

RESULTS

1. Theoretical Aspects of the Impact of Tax Incentives on the Intellectual Transformation of Companies

The prospects for using tax incentives in the process of intellectual transformation of companies depend on several factors. Firstly, intellectual transformation requires significant investments, but there is uncertainty about the outcome. This uncertainty creates risks and can hinder progress. Lack of financing makes it difficult for companies to achieve their goals, including digitalization. Capital market issues make it more expensive to obtain funds from external sources and limit financing.

Tax incentives can help reduce these financial barriers. Taxes are mandatory expenses for businesses, which can lead to

a loss of resources and reduced internal funds. However, tax incentives can increase the funds available to companies without imposing additional conditions on their operations. This can motivate companies to invest in digital transformation

Secondly, according to the principle of preferential financing, it is often more profitable for companies to utilize internal financing due to its lower costs. External financing should only be considered if internal financing proves insufficient. However, when the tax burden becomes excessively high, businesses may be forced to turn to external financing options such as loans or equity issues, which can lead to increased costs [7]. In addition, companies will need to bear the additional financial burden associated with the repayment of the principal amount at maturity and regular interest or dividend payments. These conditions do not support the implementation of transformational activities. Instead, tax incentives allow businesses to access reliable internal financing sources. They reduce financial constraints for enterprises, allowing them to allocate more resources towards transformational areas and accelerate their digital transformation.

Thirdly, tax incentives contribute to the modernization of equipment, demonstrating the willingness of organizations to explore new areas and actively carry out transformations. These incentives play a crucial role in increasing companies' investment costs and reducing the cost of capital for users, leading to a change in investment opportunities. The level of tax benefits directly affects the willingness to invest. Under the current policy, federal and regional investment deductions, accelerated depreciation, and other tax incentives increase efficiency in allocating companies' resources, reducing investment and fund renewal costs, accelerating the frequency of equipment replacement, and promoting technological progress.

Fourth, increasing the company's digital literacy requires allocating additional resources for innovation. However, innovation can be risky and uncertain with respect to potential profits, which can reduce the investment motivation of businesses. Tax incentives from the government can help offset the costs of innovation and contribute to expected profits from digital transformation. This encourages businesses to invest more in innovation.

Table 3

The Results of Modeling the Indirect Dependence Between Tax Incentives and ICT Indicators

Indicators	Meaning
Symbols	Y – The amount of tax benefits per taxpayer is in thousands of rubles. X_1 – GVA of the ICT sector per employee of the ICT sector, million rubles. X_2 – GVA of the ICT sector, % of GDP
Correlation coefficient	$R = 0.887$
Coefficient of determination	$R^2 = 0.786$
The regression equation	$Y = 3263.44 + 327.01X_1 - 993.42X_2$
Investigation of multicollinearity of factors	$Ryx_1 = 0.556$ $Ryx_2 = -0.72$ $Rx_1x_2 = -0.08$
Significance of the parameters (t-statistics)	$t_0 = 4.802 > t_{tabl} = 2.56$ $t_1 = 3.597 > t_{tabl} = 2.56$ $t_2 = 4.87 > t_{tabl} = 2.56$
Significance of the equation (The Fisher criterion)	$F = 19.867 > F_{tabl} = 3.89$
Checking for the absence of heteroscedasticity of residues	The Spearman Criterion: $S = 0.69 > S_{tabl} = 2.533$ The Goldfeld-Quandt criterion: $G = 1.2 > G_{tabl} = 5.05$
Checking for the absence of autocorrelation of residuals (The Darbin-Watson criterion)	$2.46 > DW = 2.19 > 1.54$

Source: Author's calculations.

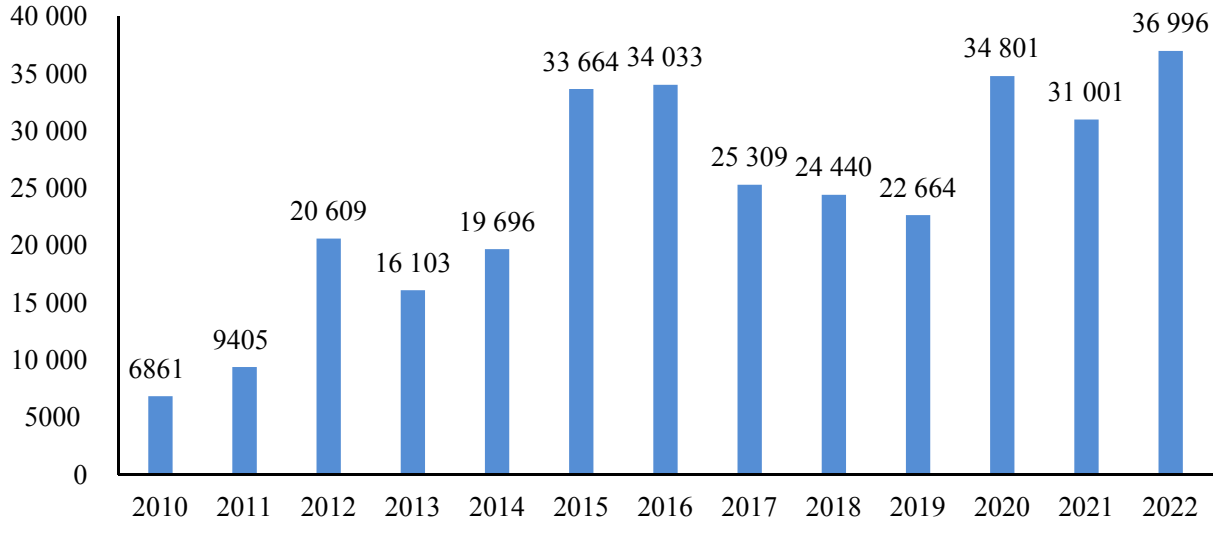

Fig. 1. **Internal Expenditure on Research and Development in the ICT Sector, in Million of Rubles**

Source: Compiled by the authors based on statistical research data from the Higher School of Economics: 1) Abashkin V.L., Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. et al. Compiled by the authors based on data from Digital economy: 2024: a brief statistical digest. Moscow: ISSEK HSE; 2024. 124 p.; 2) Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. et al. Digital economy indicators: 2019: a statistical digest. Moscow: ISSEK HSE; 2019. 248 c.; 3) Abashkin V.L., Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. et al. Digital economy indicators: 2025: a statistical digest. Moscow: NRU HSE, 2025. 296 p.

At the same time, it is important to understand that the policy of tax incentives can have a threshold effect on the digital transformation of enterprises. These policies are often designed and implemented for businesses of a certain size or industry, meaning that there are thresholds for different companies to receive tax benefits. Small businesses and startups may not meet the criteria and conditions for receiving these benefits, and therefore do not receive them. Additionally, the scope and effectiveness of these tax incentives are also limited.

Since digital transformation requires significant investment in areas such as technological research and development, equipment modernization, and human resource training, tax incentives may only cover a small portion of these costs. For projects with large investments, the benefits may be relatively insignificant, creating a threshold effect. Furthermore, the long-term stability of these tax benefits affects companies' decisions about digital transformation.. If companies perceive tax benefits as temporary or uncertain, they may be more hesitant to make long-term investments in intellectual transformation, or they may choose to wait for more stable political conditions.

2. Assessment of the Impact of Tax Incentives on the Intellectual Transformation of Business

The results of constructing a model of indirect (peripheral) influence described in the section "Materials and methods" are presented in *Table 3*.

The study of paired correlation coefficients suggests that there is a moderate relationship between tax benefits and the first factor, and a strong relationship with the second factor. There is no multicollinearity between the factors, which suggests the possibility of creating a multiple regression model.

The resulting model is statistically significant and reliable according to the Fisher criterion, with all parameters being significant (based on t-statistics). The necessary conditions for the least squares method have also been met.

1) There is no heteroscedasticity in the residuals of the model (as assessed by the Spearman and Goldfeld-Quandt tests, both of which did not exceed tabular values).

Table 4

The Results of Modeling the Direct Dependence Between Tax Incentives and Companies' Spending on Digital Transformation

Indicator	Model 1	Model 2
Symbols	X_1 – the amount of tax benefits per taxpayer, thousand rubles. Y – the cost of organizations for the development of the digital economy, billion rubles	X_2 – the amount of tax benefits per taxpayer, thousand rubles. Y – is the cost of developing the digital economy, % of GDP
Correlation coefficient	$R = 0.2834$	$R = 0.7165$
Coefficient of determination	$R^2 = 0.08031$	$R^2 = 0.5133$
The regression equation	$Y = 2015.82 + 0.5X_1$	$Y = 4.0176 - 0.000445X_2$
Significance of the parameters (t-statistics)	$t_0 = 2.39 < t_{tabl.} = 3.163$ $t_1 = 0.661 < t_{tabl.} = 3.163$	$t_0 = 18.612 > t_{tabl.} = 3.163$ $t_1 = 2.296 < t_{tabl.} = 3.163$
Significance of the equation (The Fisher criterion)	$F = 0.437 < F_{tabl.} = 6.6079$	$F = 5.273 < F_{tabl.} = 6.6079$
Checking for the absence of heteroscedasticity of residues	The Spearman Criterion: $S = 1.28 < S_{tabl.} = 3.163$ The Goldfeld-Quandt criterion: $G = 3.7 < S_{tabl.} = 19$	The Spearman Criterion: $S = 1.36 < S_{tabl.} = 3.163$ The Goldfeld-Quandt criterion: $G = 4.39 < S_{tabl.} = 19$
Checking for the absence of autocorrelation of residuals (The Darbin-Watson criterion)	$1.36 > DW = 0.65$	$1.36 < DW = 1.58 < 2.64$

Source: Author's calculations.

2) There is also no autocorrelation in the residuals (as determined by the Durbin-Watson test, which fell within the range of autocorrelation absence.

The results of building a multiple regression model suggest that there is a strong correlation between tax benefits and indicators of the ICT sector. It was found that, in the studied case, 76.8% of the variability in the total amount of tax benefits is explained by changes in the factors included in the model. At the same time, an increase in tax benefits contributes to the growth of the gross value added (GVA) of the information and communication technology (ICT) sector (and vice versa, a direct link is formed). However, the relationship between tax benefits and the share of the ICT GVA in gross domestic product (GDP) is reversed. This situation (in terms of the feedback between tax benefits and the ICT share in the economy) may be associated with a high multiplier effect of the sector's influence on other industries, contributing to a reduction in its overall share in GDP.

Indicators of separate determination revealed a stronger relationship between tax benefits and the GVA share of the ICT sector. Similar results were obtained when calculating partial elasticity coefficients: for the GVA per employee indicator of the ICT sector, it was 0.8%, and for the share of ICR GVA, it was 3.8%. The influence of the second factor in the model is greater.

Thus, it has been proved that there is an indirect influence of tax incentives on the intellectual transformation of businesses through the development of the information and communication technology (ICT) sector. This influence manifests itself, among other things, in an increase in the overall internal costs of research and development in the ICT sector (*Fig. 1*).

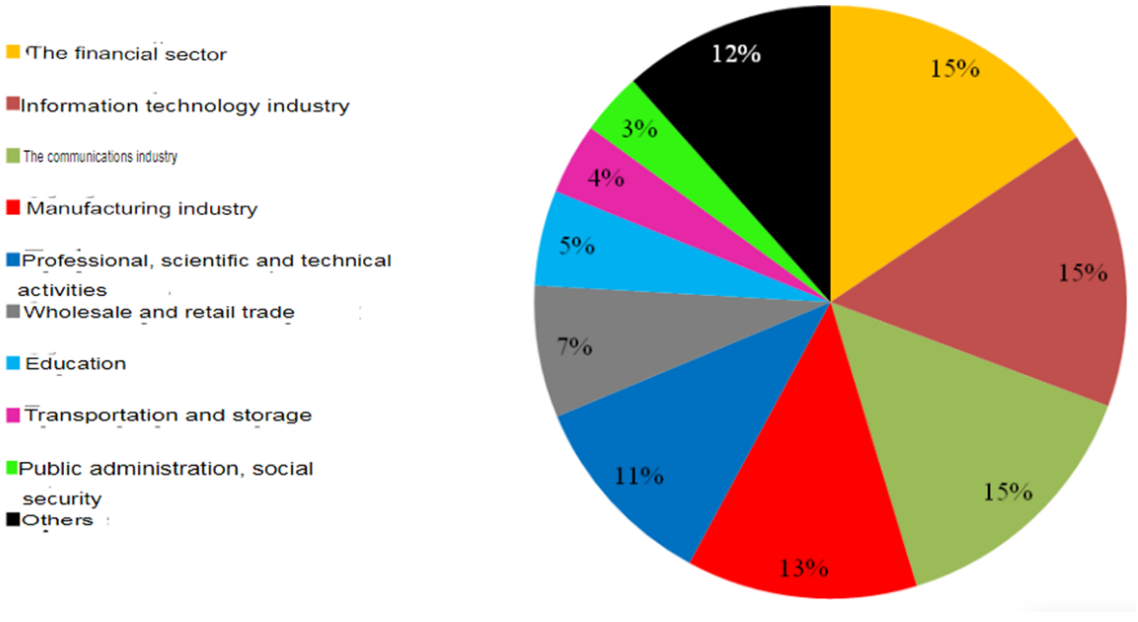

Fig. 2. **The Structure of Internal Costs of Organizations for the Creation, Distribution, and Use of Digital Technologies and Related Products and Services, by Type of Economic Activity, in % (2024)**

Source: Compiled by the authors based on data from: Abashkin V.L., Abdrakhmanova G.I., Vishnevsky K.O., Gokhberg L.M. et al. Compiled by the authors based on data from Digital economy: 2024: a brief statistical digest. Moscow: ISSEK HSE; 2024. 124 p.

The data in *Fig. 1* show a general upward trend in research and development costs in the ICT sector. However, this trend is not stable. For example, during the periods 2013–2014, 2017–2019, and 2021, there has been a reduction in these costs (the estimates are given in real prices without taking into account the inflation rate). In addition, statistical studies by HSE show an increase in the share of innovative goods, works and services in the ICT sector from 5.4% in 2010 to 10.8% in 2022.

The results of constructing models of direct influence are presented in *Table 4*.

The construction of paired regression models using indicators of companies' costs for digital transformation led to a negative result. Both equations were found to be statistically insignificant according to the Fisher criterion, as well as the parameters for qualitative variables according to t-statistics. Also, all necessary prerequisites for the least squares method were not met: there was an autocorrelation in residuals in model 1. We found that only 8% of variability in organizations' costs for developing the digital economy and 51% of variability of digitalization costs in GDP can be explained by tax factors. Therefore, interpretation of model results is not possible, and direct impact of tax incentives on intellectual transformation of companies could not be proven by statistical methods.

Nevertheless, a positive effect has been achieved in this direction. As shown in *Table 1*, over the period from 2017 to 2023, the total costs of organizations for the development of the digital economy increased from 1739 to 3294 billion rubles (almost 2 times) against the background of an increase in the average amount of tax benefits over the same period by only 5%. The positive impact of stimulating government policy is also reflected in how such costs of digitalization are distributed across industries and types of economic activity (*Fig. 2*).

The presented structure shows the distribution of internal costs of organizations for the creation, dissemination and use of digital technologies for various types of economic activity. The main category of digital technology users is the financial sector (16%, the industry is traditionally the leader in this area, due to the high degree of automation of

business processes). Organizations working in the field of information technology and communications share the second and third places (15% each) in terms of the cost of digital solutions. It is important to note that the manufacturing industry stands out among the top five industries (12.6%), which today actively integrates automated production lines, ERP systems and equipment condition monitoring systems.

DISCUSSION

The results of the study are not definitive, but they do generally align with previous research on a similar subject. There is limited evidence in the academic literature that suggests a positive correlation between tax reduction policies and the intellectual development of companies. This phenomenon can be attributed to the fact that the concept of intelligent production at enterprises is based on unique characteristics of production technologies [11], which makes it challenging to fully understand the underlying impact of preferential tax policies on the digital transformation of businesses [12]. For example, Dye and Chapman use a theoretical model (without testing it on practical data) to study the impact of tax reduction policies on intellectual modernization of production in the context of flexible manufacturing [13]. The authors' research has shown that preferential policies can contribute to intellectual modernization mainly in the short term. However, it is important to remember that excessively rapid tax cuts can limit their effectiveness. Therefore, the state ought to maintain a balance in terms of both the duration of tax benefits and in terms of the speed of their introduction. Similarly, many Russian researchers study digital transformation by examining specific companies [14, 15]. Perhaps the results of this study would be somewhat different if they were based on organizational data rather than aggregated macroeconomic indicators.

Existing research also shows that the impact of tax incentives on digital transformation is not linear and demonstrates threshold effects at which marginal benefits can decrease as soon as companies reach a certain size or technological level [16]. E.E. Panfilova notes that the tax benefits provided to SEZ residents stimulate small companies to the process of reverse engineering, which is an important factor of digitalization for entities of this size [17]. In this regard, in further research, it is possible to differentiate the construction of models by the size of enterprises. Comparing modeling based on data from specific enterprises with the macroeconomic modeling conducted in this article will allow us to correlate the macro- and microeconomic effects of tax benefits in the context of digitalization.

The time threshold effect is revealed in V.G. Panskov's study. The author notes that the significant impact of tax incentives on investment and innovation is only evident in the first two years of implementation, after which it levels off [18].

Other studies in the field of tax policy and corporate behavior show that tax cuts can encourage enterprises to invest in fixed assets [19], promote the development of IT technologies [20], reorganize and improve the quality of their human resources, and expand companies' innovation policies [21]. Studies based on the application of tax incentives in the United States for depreciation of fixed assets show that small enterprises respond to them more actively than large companies [22]. Similarly, the accelerated depreciation policy in China primarily stimulates investments in small enterprises and private organizations, and also significantly affects the efficiency of capital allocation within them [23]. At the same time, international studies emphasize that differences in the market environment, tax systems and corporate culture in different countries and regions can lead to different ways and consequences of tax incentives for digital transformation [24]. In general, the presented

research also demonstrates the growth of business investments in digitalization.

In many ways, these strong differences in the results obtained by the authors can be justified by the fact that, in addition to tax incentives, the factors influencing intellectual and technological modernization are the development of intelligent technologies, technological innovations [26, 27], labor costs [28], environmental regulations, political incentives and demand for market-based and entrepreneurial products based on innovative spirit [29]. The scientific literature notes that factors influencing digital transformation include both internal and external factors. Internal factors include the propensity of business leaders to take risks and the characteristics of their leadership teams. External factors include digital technologies, the competitive environment, tax support, and government intervention.

The digital transformation of an enterprise requires a leadership team that is willing to innovate and willing to take risks. The team must be able to adapt to new technologies and be open to change. They must also be willing to work with other teams and stakeholders to create a culture of collaboration and innovation [30]. Age, gender, work experience in information technology, and a variety of professional skills — all these factors also affect the effectiveness of a company's digital strategy [31]. Market competition in the industry [32], industrial Internet policy and the testing of smart cities [33] also have a significant impact on the intellectual transformation of companies. Similarly, human capital is the most important factor of productivity in business [34]. The main challenge faced by businesses during digital transformation is a lack of digital skills, which is particularly noticeable in smaller organizations. A significant factor determining the strength of a company's human capital is the proportion of employees with a higher level of education and those with unique, high-level skills [35].

CONCLUSIONS

Within the framework of this study, a scientifically based methodology has been developed to assess the indirect and direct impact of tax benefits on the intellectual transformation of companies. The proposed approach is universal and can be tested using disaggregated data from individual taxpayers. This will allow us to draw more accurate conclusions about the direct impact of tax benefits and identify areas for improvement in individual tax policy instruments.

It is important to understand that benefits alone cannot solve all the problems facing the national economy when it comes to digitalization. A significant portion of the cost of the intellectual transformation is innovation-based, and therefore carries risks. Therefore, during times of crisis, it is understandable for companies to be reluctant to invest in high-risk innovations. In this regard, a comprehensive approach is required, including strengthening the scientific foundation, creating a supportive business environment, and ensuring equal opportunities for all market players.

Despite the proven positive effects of indirect tax benefits on the intellectual transformation of companies through the ICT sector, their significant positive impact on other industries (such as manufacturing and construction) has not been fully demonstrated. This suggests that the use of tax incentives should be accompanied by careful monitoring of the results, regular assessment of the effectiveness of the measures taken and subsequent adjustment of ineffective tax instruments. In this regard, it seems appropriate to increase the responsibility of businesses for the application of tax benefits. This is possible when switching to the equivalent principle of tax incentives, which involves imposing an obligation on the taxpayer to invest in his digital transformation in amounts equivalent to the amount of benefits provided. A similar mechanism is used, for example, when providing reduced insurance premium rates

to residents of industrial clusters (Subpara. 21, para.1, art. 427 of the Tax Code of the Russian Federation). In accordance with para. 16 of art. 427 of the Tax Code of the Russian Federation, reduced insurance premium rates are applied by a participant in an industrial cluster, provided that the volume of investments made for the implementation of an investment project exceeds the amount of the company's saved costs due to the application of a reduced insurance premium rate (both indicators are determined from the beginning of the application of uniform reduced insurance premium rates).

In addition, it would be advisable to systematically evaluate the effectiveness of benefits on an individual level. This approach has already been launched by the Federal Tax Service of Russia using agile methods. The agile methodology allows the Federal Tax Service to evaluate the benefits in relation to specific taxpayers, conducting micro-level analytics. Further development of this approach using data mining tools is a priority for ensuring the digital transformation of Russian companies. Its application will allow determining the most promising directions for tax policy development.

REFERENCES

1. Smirnov V. D. Economic (de-)globalization: Who does determine it? *Finance: Theory and Practice*. 2025;29(1):53–67. DOI: 10.26794/2587-5671-2025-29-1-53-67
2. Zhang D., Bai D., Wang C., He Y. Distribution dynamics and quantile dynamic convergence of the digital economy: Prefecture-level evidence in China. *International Review of Financial Analysis*. 2024;95A:103345. DOI: 10.1016/j.irfa.2024.103345
3. Psareva N.Yu., Kiselev D. N. Legal and institutional support for digitalization of the economy (business). *Vestnik Moskovskogo mezhdunarodnogo universiteta*. 2024;1(1):206–211.
4. Manakhova I. V., Beloglazov I. V. Digital transformation of small and medium-sized businesses in Russia: Challenges, prospects and the role of government support. *Rossiiskii ekonomicheskii zhurnal = Russian Economic Journal*. 2023;(5):112–124. (In Russ.). DOI: 10.52210/0130-9757_2023_5_112
5. Dyachkina L. A., Kozhakina A. I. Tax incentives as a tool for stimulating the development of the IT industry. *Ekonomika. Nalogi. Pravo = Economy. Taxes. Law.* 2025;18(5):133–145. (In Russ.). DOI: 10.26794/1999-849X-2025-18-5-133-145
6. Wang J., Qin X. Tax reduction incentive and corporate financialization. *Finance Research Letters*. 2024;62B:105208. DOI: 10.1016/j.frl.2024.105208
7. Ryakhovsky D. I., Balakin M. S. Analysis of the impact of the tax burden on economic growth: Theoretical and empirical aspects. *Ekonomika ustoichivogo razvitiya = Economics of Sustainable Development*. 2022;(3):119–122. (In Russ.). DOI: 10.37124/20799136_2022_3_51_119
8. Kakaulina M. O., Gorlov D. R. Assessment of the impact of tax incentives on investment activity in special economic zones of the Russian Federation. *Journal of Applied Economic Research*. 2022;21(2):282–324. (In Russ.). DOI: 10.15826/vestnik.2022.21.2.011
9. Antipina O. V. Tax incentives for innovation as a method of state regulation of economic development. *Ekonomika i predprinimatel'stvo = Journal of Economy and Entrepreneurship*. 2023;(3):326–328. (In Russ.). DOI: 10.34925/EIP.2023.152.3.065
10. Ivanov M.Yu., Borisov V. V. Development and application of information technologies in the field of economic policy and ensuring national interests. *Problemy sotsial'no-ekonomicheskogo razvitiya Sibiri = Issues of Social-Economic Development of Siberia*. 2024;(1):9–14. (In Russ.). DOI: 10.18324/2224-1833-2024-1-9-1
11. Sedaya M. O., Saraev L. A. Digital enterprise as a result of digital transformation: Theoretical aspects and degree of influence on modern business. *Dialog*. 2024;(2):97–99. (In Russ.).
12. Zhou S., Zhou P., Ji H. Can digital transformation alleviate corporate tax stickiness: The mediation effect of tax avoidance. *Technological Forecasting and Social Change*. 2022;184:122028. DOI: 10.1016/j.techfore.2022.122028

13. Dai X., Chapman G. R&D tax incentives and innovation: Examining the role of programme design in China. *Technovation*. 2022;113:102419. DOI: 10.1016/j.technovation.2021.102419
14. Maiorova K.S. Structure and features of the production system of the digital ecosystem of the Russian company in the context of digital transformation. *Upravlencheskii uchet = The Management Accounting Journal*. 2024;(6):335–342. (In Russ.).
15. Kulichkina Yu.O., Polyakov S.D. Digital transformation of business on the basis of PJSC Rostelecom. *Nauchnyi Lider*. 2023;(12):6–8. (In Russ.).
16. Fu Ch., Luo D., Zhang J., Li W. Tax incentives, marketization level, and corporate digital transformation. *International Review of Economics & Finance*. 2025;97:103777. DOI: 10.1016/j.iref.2024.103777
17. Panfilova E.E. Digital transformation of the economy and its impact on the development of special economic zones. *Journal of Monetary Economics and Management*. 2025;(1):125–130. (In Russ.). DOI: 10.26118/2782-4586.2025.62.67.019
18. Panskov V.G. Changing priorities in the distribution of the tax burden as a condition for ensuring the transition to accelerated development. *Ekonomika. Nalogi. Pravo = Economy. Taxes. Law*. 2023;16(1):140–151. (In Russ.). DOI: 10.26794/1999-849X-2023-16-1-140-151
19. Yang G., Deng F., Du M. Research on the asymmetric influence of non-R&D subsidy and R&D subsidy on digital enterprises performance: Empirical evidence from China's digital industry. *Journal of the Knowledge Economy*. 2024;15(3):14749–14786. DOI: 10.1007/s13132-023-01682-2
20. Kolotovkin I.V., Polezharova L.V. Effectiveness of tax benefits for information technology organizations in Russia. *Finance: Theory and Practice*. 2024;28(2):71–81. DOI: 10.26794/2587-5671-2024-28-2-71-81
21. Qi Y., Zhang J., Chen J. Tax incentives, environmental regulation and firms' emission reduction strategies: Evidence from China. *Journal of Environmental Economics and Management*. 2023;117:102750. DOI: 10.1016/j.jeem.2022.102750
22. Ullah S., Niu B., Meo M.S. Digital inclusion and environmental taxes: A dynamic duo for energy transition in green economies. *Applied Energy*. 2024;361:122911. DOI: 10.1016/j.apenergy.2024.122911
23. Ding Q., He W., Deng Y. Can tax reduction incentive policy promote corporate digital and intelligent transformation? *International Review of Financial Analysis*. 2025;99:103932. DOI: 10.1016/j.irfa.2025.103932
24. Borisova O.V., Dreving S.R., Loseva O.V., Fedotova M.A. State financial support measures and risk factors affecting the cost of investment projects for the introduction of industrial robotic complex. *Finance: Theory and Practice*. 2025;29(3):20–34. DOI: 10.26794/2587-5671-2025-29-3-20-34
25. Khan A., Goodell J.W., Hassan M.K., Paltrinieri A. A bibliometric review of finance bibliometric papers. *Finance Research Letters*. 2022;47A:102520. DOI: 10.1016/j.frl.2021.102520
26. Xu D., Guo D., Yue P., Li M. Household green consumption: Does digital inclusion matter? *International Review of Financial Analysis*. 2024;91:102977. DOI: 10.1016/j.irfa.2023.102977
27. Krinichansky K.V., Zeleneva E.S. Fintech sector in the context of financial development and problems of its measurement. *Finance: Theory and Practice*. 2024;28(5);121–132. DOI: 10.26794/2587-5671-2024-28-5-121-132
28. Guan Y., Wang X., He Y. Structural tax reduction and corporate labor investment efficiency. *Finance Research Letters*. 2024;62A:105040. DOI: 10.1016/j.frl.2024.105040
29. Huang N., Liu Y. Structural tax reduction, financing constraint relief and enterprise innovation efficiency. *Finance Research Letters*. 2024;60:104848. DOI: 10.1016/j.frl.2023.104848
30. Jia J., Ding S., Liu Y. Decentralization, incentives, and local tax enforcement. *Journal of Urban Economics*. 2020;115:103225. DOI: 10.1016/j.jue.2019.103225
31. Kane G., Palmer D., Phillips A., Kiron D., Buckley N. Strategy, not technology, drives digital transformation. *MIT Sloan Management Review*. 2015;(14):1–25. URL: https://zonecours2.hec.ca/sdata/c/attachment/6–700–15.A2016.J01/OpenSyllabus/01_Strategy%20not%20techno%20drives%20digital%20transfo.pdf

32. Dremel C., Herterich M., Wulf J., Waizmann J., Brenner W. How AUDI AG established Big Data analytics in its digital transformation. *MIS Quarterly Executive*. 2017;16(2):81–100. URL: https://www.researchgate.net/publication/317232875_How_AUDI_AG_Established_Big_Data_Analytics_in_its_Digital_Transformation
33. Verhoef P., Broekhuizen T., Bart Y., et al. Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*. 2021;122:889–901. DOI: 10.1016/j.jbusres.2019.09.022
34. Lai X., Yue S. Does the smart city pilot promote digital transformation of enterprises? An empirical study based on quasi-natural experiments. *Foreign Economics and Management*. 2022;44(10):117–133. (In Chin.). DOI: 10.16538/j.cnki.fem.20220622.401
35. Zhou J., Liu X., Wang Z. Tax neutrality and digital transformation of private enterprises: From the perspective of human capital structure adjustment. *International Review of Financial Analysis*. 2025;103:104200. DOI: 10.1016/j.irfa.2025.104200

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