



## Unicorn Companies —How Does the Country's Environment Drive Its Emergence?

Aliya Ilaltdinova<sup>1\*</sup>, Ekaterina Koroleva<sup>1</sup>

<sup>1</sup>Graduate School of Industrial Economics, Peter the Great St. Petersburg Polytechnic University, St. Petersburg, Polytechnicheskaya, 29, 195251, Russia

**Abstract.** Driven by innovative solutions and business models, the Unicorn companies have developed widely. Nevertheless, the existing research is fragmented and limited mainly by descriptive approaches to examining the rise of these companies. We examine the association between the country-specific factors and the emergence of Unicorn companies in certain countries. Cross-sectional linear and logistic regression models are used on the dataset of 100 countries, 51 of which have a minimum of 1 Unicorn, and the rest have not anyone. The results allow us to conclude that the probability of Unicorn emergence depends on the entrepreneurial culture, human capital, and regulatory environment of the country. In other words, entrepreneurial spirit, education, and a favorable legal environment can lead to the appearance of a Unicorn in the country. The further development and appearance of more Unicorn companies are ensured by the availability of financing and the development of IT- infrastructure. Key characteristics include the growth of venture financing and the openness of firms to new technologies in the country. The study contributes to the existing research in part of focusing on the quantitative analysis of the association between the country-specific factors and the Unicorns' activity.

*Keywords:* Country's environment; Entrepreneurship; Start-ups; Unicorn companies

### 1. Introduction

The application of innovative technologies and the emergence of new business models led to the appearance of Unicorn companies (further - Unicorns). These can be start-ups or private companies with a valuation of more than one billion dollars (Fan, 2016). The overall influence of Unicorns on the country's economy relies on their number and the setup of their business models. Unicorns developed rapidly, beginning with the early 2010s in Silicon Valley in the USA (Aldrich and Ruef, 2018). Nowadays, the number of Unicorns has reached 1205 companies in different countries (CB Insights, 2023). The highly uneven distribution of unicorns across countries can be observed. Most of the companies are accumulated in the USA, the UK, and China (more than 50%). Countries such as Bermuda, Ecuador, Malaysia, and Nigeria have at least one Unicorn. Nevertheless, there are technologically advanced countries (Kazakhstan, Russian Federation) where there are no Unicorns.

According to the results of researchers (Ahmad, Kowalewski, and Pisany, 2023; Yusupova and Ryazantseva, 2022; Koroleva, Baggieri and Nalwanga, 2020; Stam and

---

\*Corresponding author's email: [ilaltdinova.ai@edu.spbstu.ru](mailto:ilaltdinova.ai@edu.spbstu.ru), Tel.: +7(921)-577-02-44  
doi: [10.14716/ijtech.v14i8.6828](https://doi.org/10.14716/ijtech.v14i8.6828)

Garnsey, 2008), the country's environment has a direct influence on business activity. Regarding Unicorns, the existing literature remains highly fragmented (Bock and Hackober, 2020). According to the systematic literature review by Giardino *et al.*, 2023, more investigation is required to assess the influence of digital, social, and entrepreneurial factors on the capabilities of unicorns. In the framework of research, we fulfill the revealed research gap and investigate the relevant factors in the context of the country's environment that influence the appearance of Unicorns.

We use a dataset reflecting the number of Unicorns in each country and, accordingly, information about the country-specific factors. The initial dataset is collected with officially published statistics (Sala-i-Martin, 2016). Cross-sectional linear and logistics models are used on a dataset of 100 countries, 51 of which have a minimum of 1 Unicorn, and the rest have not anyone.

Different indicators can be used to measure the country's environment. We assume that Unicorns' activity is mainly entrepreneurial and determine the indicators on the base of the elements for entrepreneurial ecosystems proposed by Stam (2018). Eric Stam developed the Ecosystem Index, consisting of the following elements: formal institutions, entrepreneurship culture, physical infrastructure, demand, networks, leadership, talent, finance, new knowledge, and intermediate services. Considering the specifics of the Unicorns' activity, the indicated elements have been improved and grouped into the following categories: availability of financing, legal regulation, research and development, entrepreneurial culture, and human capital. The availability of financing refers to the possibility of obtaining both a traditional bank loan and venture lending in a certain country. Legal regulation is understood as a set of indicators reflecting the ease of doing business from the legal side - fairness of the court, the focus of legislation on innovation, the presence of corrupt payments, and the rigor of business audits. The category of research and development is mostly connected with the individual ideas and characteristics of the entrepreneur. Therefore, we associate this category with the ability of countries to attract and retain talents who conduct research and implement it in practice. Entrepreneurial culture refers to the individual's focus on creating a business and the ease of starting a business. Human capital reflects the quality of the education system in a certain country.

Thus, the main goal of the research is the following: to examine the association between the country-specific factors and the possibility of Unicorns' emergence.

The results of building a logistics model show that the probability of the Unicorns' emergence is determined mainly by the entrepreneurial culture, human capital, and regulatory environment in a certain country. In other words, entrepreneurial spirit, a strong educational system, and a favorable legal environment can lead to the appearance of a Unicorn in the country. The further development and appearance of more Unicorn companies are ensured by the availability of financing and the development of IT infrastructure. The key characteristics are the development of venture financing and the openness of firms to new technologies in the country.

The paper contributes to the literature on Unicorns (Cristofaro, Giannetti, and Abatecola, 2023; Kotha, Shin and Fisher 2022; Kartanaitė and Krušinskas, 2022; Aldrich and Ruef, 2018) by being the first to investigate the relationship between country-specific factors and emergence of Unicorn companies. It also contributes to the literature focusing on the influence of different factors on business activity (Grover *et al.*, 2023; Pishchalkina, Pishchalkin, and Suloeva, 2022; Harun, Dorasamy, and Ahmad, 2022; Roche, Romero, and Sellers-Rubio, 2019) in part of analyzing the Unicorns' activity.

The paper is structured as follows. The initial dataset and methodology of research are discussed in section 2. The results and their discussion are presented in section 3. Finally, section 4 provides the main conclusion of the research.

## 2. Methods

To achieve the goal of the study we used the following step-by-step algorithm of research: 1) determining the time lag between the reflection of a special country's environment and the appearance of Unicorns; 2) collecting the initial dataset; 3) checking for multicollinearity of factors; 4) defining outliers in the datasets; 5) formation of the final dataset; 6) building two types of models - Ordinary least-squares (OLS) Model and logistic model 6) for OLS Model – controlling for heteroscedasticity and report robust standard errors for each coefficient estimate, for logistic model – creating the contingency table and Receiver operating characteristic (ROC) curve.

### 2.1. Initial Dataset

In the framework of research, we face the challenge of determining the time lag between the reflection of a special country's environment and the appearance of Unicorns. According to [Venâncio, Picoto, and Pinto \(2023\)](#), a company needs nearly 5.63 years to become a Unicorn. [Kotha, Shin and Fisher \(2022\)](#) revealed that most companies need up to 10 years to achieve Unicorn status. Based on the collected dataset, we also calculated the average period required for a company to achieve Unicorn status. It equals to 6.5 years. The results of previous studies and our own calculations allow us to set up a time lag of 7 years between the conditions created in the country and the appearance of the Unicorn. Therefore, we collected the data on the country's environment for 2016 and examined its influence on the appearance of Unicorns for 2022.

The initial view of variables and descriptive statistics is presented in Appendix 1. Dependent variables are presented by three variables - the number of unicorns appearing in a certain country by 2022 (Uni\_to\_22), the number of unicorns born in 2022 (Uni\_at\_2022), and the presence of unicorns in the country (Uni\_0\_1).

As explanatory variables, we use the following categories of the country's environment: availability of financing (indicators marked with a prefix f\_), legal regulation (indicators marked with a prefix l\_), IT infrastructure (indicators marked with a prefix I\_), research & development (indicators marked with a prefix R\_), entrepreneurial culture (indicators marked with a prefix E\_) and human capital (indicators marked with a prefix H\_). We also include two variables to control the size and growth of a country - Gross Domestic Product per capita (C\_GDP\_PPP) and inflation rate (C\_Inflation).

Given the multitude of variables and limited observations in our study of a country's environment, we have generated separate correlation matrices. This approach enables us to diminish the number of variables and temporarily retain representatives from all categories of a country's environment. In our case, a correlation level of 0.80 serves as the threshold for a factor within a group to be retained.

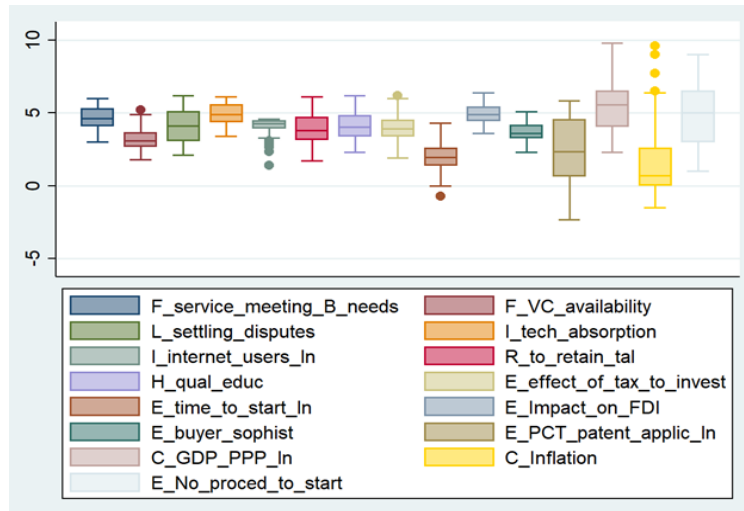
After choosing factors in each category, we came up with a general correlation matrix, concluding information about the association between factors from different categories of the country's environment (see in Table 1).

In the general correlation matrix, variables Business impact of rules on FDI (E\_Impact\_on\_FDI) and Country capacity to retain talent (R\_retain\_tal) have a rather high correlation.

**Table 1** Correlation matrix

	F_service_meeting_B_needs	F_VC	L_set_disputes	I_tech_abs	I_internet_user	R_retain_tal	E_tax	E_time	E_No_proced	E_Impact_on_FDI	E_buyer_sophist	E_patent	H_qual_educ	C_GDP_PPP
F_service_meeting_B_needs	1.00													
F_VC	0.79	1.00												
L_set_disputes	0.72	0.76	1.00											
I_tech_abs	0.78	0.74	0.73	1.00										
I_internet_user	0.24	0.34	0.34	0.56	1.00									
R_retain_tal	0.76	0.79	0.79	0.82	0.36	1.00								
E_tax	0.52	0.63	0.63	0.38	0.17	0.56	1.00							
E_time	-0.09	-0.09	-0.16	-0.23	-0.40	-0.04	-0.10	1.00						
E_No_proced	-0.02	0.01	-0.07	-0.15	-0.31	0.07	0.02	0.78	1.00					
E_Impact_on_FDI	0.63	0.52	0.40	0.57	0.24	0.51	0.40	-0.24	-0.24	1.00				
E_buyer_sophist	0.66	0.74	0.79	0.74	0.37	0.84	0.49	-0.08	-0.03	0.43	1.00			
E_patent	0.45	0.50	0.50	0.70	0.70	0.50	0.11	-0.38	-0.34	0.48	0.58	1.00		
H_qual_educ	0.55	0.70	0.74	0.76	0.47	0.76	0.45	-0.27	-0.08	0.42	0.68	0.62	1.00	
C_GDP_PPP	0.26	0.35	0.23	0.25	0.12	0.34	-0.08	0.16	0.31	0.04	0.47	0.29	0.16	1.00
C_Inflation	-0.22	-0.22	-0.15	-0.22	-0.17	-0.17	-0.16	0.13	0.14	-0.33	-0.12	-0.22	-0.14	0.14

To achieve the regular intervals in the dataset, we take the natural logarithm of variables with significantly different ranges from the values of most factors. The primary method employed to identify outliers and ensure overall dataset uniformity is the box plot (See Figure 1).



**Figure 1** Graph box of analysed variables

Thus, we have taken the natural logarithm of GDP per capita (C\_GDP\_PPP), Internet users (I\_internet\_user), PCT patent applications (E\_patent), and Time to start a business (E\_time).

2.2. Research models

In the framework of research, we build two types of models - the OLS Model and the logistic model. We consider the OLS Model in two cases - where dependent variables are the number of Unicorns by 2022 (Uni\_to\_22) and the number of Unicorns born specifically in 2022 (Uni\_at\_2022).

OLS Model for Unicorns by 2022 and in 2022 has the following general view (Equation 1):

$$\begin{aligned}
 \text{Uni\_to\_22} / \text{Uni\_at\_22} = & \beta_1 + \beta_2 \times \text{C\_GDP\_PPP\_ln} + \beta_3 \times \text{C\_Inflation} + \beta_4 \times \\
 & \text{F\_service\_meeting\_B\_needs} + \beta_5 \times \text{F\_VC} + \beta_6 \times \text{I\_internet\_user} + \beta_7 \times \\
 & \text{I\_tech\_absorption} + \beta_8 \times \text{R\_retain\_tal} + \beta_9 \times \text{H\_qual\_educ} + \beta_{10} \times \text{E\_tax} + \beta_{11} \times \\
 & \text{E\_No\_proced} + \beta_{12} \times \text{E\_time\_ln} + \beta_{13} \times \text{E\_buyer\_sophist} + \beta_{14} \times \text{E\_patent}
 \end{aligned}
 \tag{1}$$

Further, we use a logistic regression model where we choose Uni\_0\_1 as the dependent variable, which equals one if the country has at least 1 Unicorn and 0 - otherwise. The view of the logistic model is the following Equation 2:

$$\text{Logit}(\text{Uni\_0\_1}) = \frac{1}{1+e^{-\text{Uni\_0\_1}}}
 \tag{2}$$

where (Equation 3)

$$\begin{aligned}
 \text{Uni\_0\_1} = & \beta_1 + \beta_2 \times \text{C\_GDP\_PPP\_ln} + \beta_3 \times \text{C\_Inflation} + \beta_4 \times \\
 & \text{F\_service\_meeting\_B\_needs} + \beta_5 \times \text{F\_VC} + \beta_6 \times \text{I\_internet\_user} + \beta_7 \times \\
 & \text{I\_tech\_absorption} + \beta_8 \times \text{R\_retain\_tal} + \beta_9 \times \text{H\_qual\_educ} + \beta_{10} \times \text{E\_tax} + \beta_{11} \times \\
 & \text{E\_No\_proced} + \beta_{12} \times \text{E\_time\_ln} + \beta_{13} \times \text{E\_buyer\_sophist} + \beta_{14} \times \text{E\_patent}
 \end{aligned}
 \tag{3}$$

In the process of building models, we implement backward elimination for each equation, systematically eliminating variables with high p-levels at each step until all independent variables achieve statistical significance.

### 3. Results and discussion

The results of building the models are presented in Table 2.

**Table 2** Results of evaluation of linear and logit regression model

Model	Linear Regression	Linear Regression	Logit Regression
Dependent variable	Uni_to_22	Uni_to_22 (Only for countries with Unicorns)	Uni_0_1
F_VC	15.17*	15.57*	-
L_set_disputes	-	-21.91**	2.25*
I_tech_absorption	-	33.93**	-
E_tax	-	-	-2.68*
E_No_proced	-	-	0.53**
E_Impact_on_FDI	-	-	2.45**
E_buyer_sophist	-	-	2.94**
E_patent_ln	-	-	1.08***
H_qual_educ	-	-	-2.48**
C_GDP_PPP_ln	11.94**	8.23***	-
_cons	-103.65***	-185.06***	-16.08***
Number of observations	97	34	69
R2	15.74	38.98	-
Adjusted R2	13.95	30.56	-
Pseudo-R2	-	-	60.18
F-statistics	8.78	4.63	-

Notes: Statistical significance: \*\*\*p < 0.01, \*\*p < 0.5, \*p < 0.1.

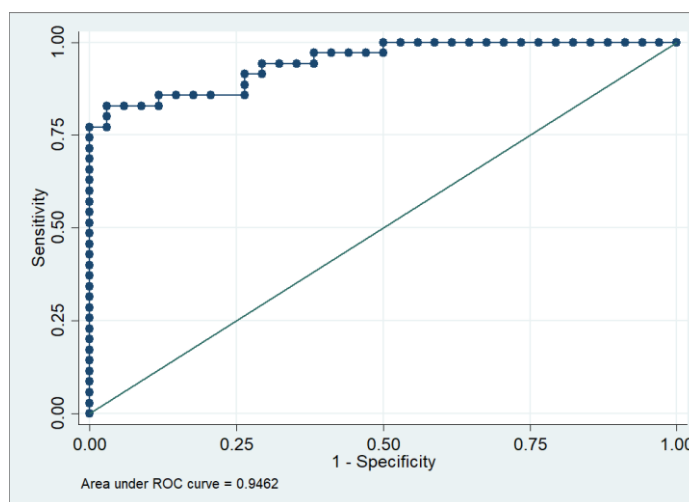
In both linear models, we control for heteroscedasticity and report robust standard errors for each coefficient estimate. The quality of a logistic model is tested by creating the contingency table (see Table 3) and ROC curve (see Figure 2).

**Table 3** Contingency table

97 observations	Predicted - 0	Predicted - 1
Observation - 0	38 (71.70 %)	15 (28.39%)
Observation - 1	12 (27.91%)	31 (72.09%)

The final view of a logistic model has the following results:

- percentage of correctly predicted overall results = 71.13 %;
- percentage of correctly predicted Unicorn’s emergence = 72.09%;
- percentage of correctly predicted Unicorn’s non-emergence = 71.70%.



**Figure 2** ROC curve for the logistic estimates

The area under the ROC curve presented in Figure 2 is 0.95, which states that the model is high quality and can be used for the prediction of Unicorn's emergence. In general, the testing of the quality of models confirmed the validity of the obtained results.

The fact of Unicorns' emergence is determined by the entrepreneurial culture, human capital, and regulatory environment in a certain country. It confirms the necessity of a complex development of the country's environment for unicorn development. Previous studies (Stam and Garnsey, 2008; Grover *et al.*, 2023) mainly focused on the importance of country-specific environments to business activity in different industries and sectors. The results expand the previous studies in part on Unicorns' emergence.

In the case of the Unicorns' emergence, the efficiency of the legal framework in settling disputes (L\_set\_disputes), the number of procedures to start a business (E\_No\_proced), the business impact of rules on FDI (E\_Impact\_on\_FDI), buyer sophistication (E\_buyer\_sophist) and PCT patent applications (E\_patent\_ln) have a positive association with the dependent variable. That might be a signal for several possible outcomes for the Unicorns' success. The efficiency of the legal framework in settling disputes creates a comfortable environment for implementing the new technologies and creating new business models for companies. In this part, the research complements the existing studies (Aldrich and Ruef, 2018; Fan, 2016). Interestingly, more procedures to open a business and more sophisticated buyers increase the probability of Unicorns' emergence. It highlights the entrepreneur's confidence in the success of the business. PCT patent applications reflect the overall interest of local businesses in developing. Therefore, the presence of innovative technologies under a patent system can be a competitive advantage for Unicorns' emergence. Unicorns are mainly associated with achievements in the IT sector and innovation decisions (Bock and Hackober, 2020).

The effect of taxation on incentives to invest (E\_tax) and quality of the education system (H\_qual\_educ) have a negative association with the dependent variable. The decrease of taxes is one of the basic forms of supporting small and medium-sized enterprises (Dolghiz Zhdanova, and Bannova, 2015). In this regard, the identified association complements the results of previous studies. The relationship between the quality of the education system and the fact of Unicorns' emergence seems contradictory. From one side, most of the platforms developed by Unicorn companies are aimed at making consumers' lives easier (getting insurance in one click, getting a credit card on a new fintech platform). It can be reflected in the literacy of consumers. Having access to a large volume of information, the consumers trust the advice of high-tech systems and do not criticize them. On the other hand, the founders of Unicorns are mainly graduates of prestigious universities who have the skills and experience to manage complicated business mechanisms (World Economic Forum, 2017).

The results of linear regression models for the number of Unicorns by 2022 and in 2022 determine the necessity of ensuring the financial availability (mainly - Venture Capital) and IT infrastructure for further development of the Unicorns. We reveal the positive association between Venture capital availability (F\_VC), Firm-level technology absorption (I\_tech\_absorption), and dependent variables. Start-ups are often turning to venture capital (Kotha, Shin and Fisher 2022) as an accessible source of financing. However, it becomes challenging for them to find business partners and prepare the necessary financial reports. Moreover, investors often face difficulties in the analysis of Unicorn's financial performance (Kartanaité *et al.*, 2022). Therefore, the development of venture capital may play a significant role in the Unicorns' development.

We reveal the negative association between the further development of the legal framework in settling disputes (L\_set\_disputes) and the number of Unicorns in 2022. The



identified dependence contradicts the previously discussed results of the logistic model. One possible explanation could be the challenges faced by startups without readily available financial reports (Cristofaro, Giannetti, and Abatecola, 2023), leading to potential difficulties in survival. Additionally, the prevalence of extensive court proceedings and subsequent fines and penalties may contribute to this negative association. Moreover, well-established companies with high incomes may avoid engaging in venturesome business partnerships due to the uncertain financial state of such companies, a trend our research confirms.

In linear regression models, the Gross domestic product is statistically significant in attitude towards the number of Unicorns by 2022 and in 2022. The gross domestic product shows the level of a country's development, so it is a complex criterion that shows the result of economic decisions made in a national economy and thus affects the entrepreneurial environment as a whole. As one of the biggest challenges Unicorn companies faces is managing and sustaining their growth, national economy development is key in terms of our research.

The research has the following main restrictions:

- The short history of Unicorns and shortage of ready-made databases influence data collection and analysis. Our research is focused mainly on the Unicorns from 34 countries. Similar future studies based on a longer timeframe can expand the presented research.
- The study's research methodology is restricted by quantitative research (linear and logistic models). It can be explained by the rather short history of Unicorns. Before analyzing how and why the different associations exist, it is necessary to determine the presence of these links.
- Another aspect that could be improved pertains to independent variables. Our research is constrained by country-specific factors, and the R-squared of the models is not particularly high. It appears that the model may need modification, and there could be potential for expanding the number of independent variables.
- In the research, we ignore the influence of COVID-19 and are limited by a certain period. COVID-10 has given a boost for the IT-sector and accelerated the emergence of Unicorns in 2019-2023. It leads to the necessity of broadening the analysis to different time periods.

#### **4. Conclusions**

The country-specific environment influences the possibility of the emergence and development of Unicorns. Entrepreneurial spirit, a strong educational system, and a favorable legal environment can lead to the appearance of a Unicorn in the country. The further development and appearance of more Unicorn companies are ensured by the availability of financing and the development of IT infrastructure. The key characteristics are the development of venture financing and the openness of firms to new technologies in the country.

#### **Acknowledgments**

The research is financed as part of the project "Development of a methodology for instrumental base formation for analysis and modeling of the spatial socio-economic development of systems based on internal reserves in the context of digitalization" (FSEG-2023-0008).



## References

- Ahmad, M.F., Kowalewski, O., Pisany, P., 2023. What Determines Initial Coin Offering Success: A Cross-Country Study. *Economics of Innovation and New Technology*, Volume 32(5), pp. 622–645
- Aldrich, H.E., Ruef, M., 2018. Unicorns, Gazelles, and Other Distractions on the Way to Understanding Real Entrepreneurship in the United States. *Academy of Management Perspectives*, Volume 32(4), pp. 458–472
- Bock, C., Hackober, C., 2020. Unicorns—What Drives Multibillion-Dollar Valuations?. *Business Research*, Volume 13, pp. 949–984
- CB Insights, 2023. The Complete list of Unicorn Companies. Available online at <https://www.cbinsights.com/research-unicorncompanies> Accessed on September 17, 2023
- Cristofaro, M., Giannetti, F., Abatecola, G., 2023. The Initial Survival of the Unicorns: A Behavioral Perspective of Snapchat. *Journal of Management History*, Volume 1751–1348
- Roche, I.C., Romero, J., Sellers-Rubio, R., 2019. Retail Services Efficiency: Impact of Country-Specific Factors. *International Journal of Retail & Distribution Management*, Volume 47(8), pp. 774–792
- Dolgih, I., Zhdanova, A., Bannova, K., 2015. The Influence of Taxation on Small Enterprise Development in Russia. *Procedia-Social and Behavioral Sciences*, Volume 166, pp. 216–221
- Fan, J.S., 2016. Regulating Unicorns: Disclosure and The New Private Economy. *BCL Review* Volume 57, p. 583
- Giardino, P.L., Delladio, S., Baiocco, S., Caputo, A. 2023. Beyond Myth: A Systematic Literature Review on the Emergence of Unicorn Firms. *Journal of Small Business and Enterprise Development*, Volume 30(6), pp. 1156–1177
- Grover, G., Jain, A., Kumar, A., Mittal, N., 2023. Impact of Firm and Country-Specific Factors on Profitability: A Study of Selected IT Companies in India. *South Asian Journal of Management*, Volume 30(2), pp. 44–70
- Harun, S., Dorasamy, M., Ahmad, A.A. 2022. Effect of ERP Implementation on Organisational Performance: Manager's Dilemma. *International Journal of Technology*, Volume 13(5), pp. 1064
- Kartanaite, I., Krušinskas, R., 2022. Financial Efficiency of Unicorns: Regional and Sector Related Aspects. *Engineering Economics*, Volume 33(2), pp. 200–214
- Koroleva, E., Baggieri, M., Nalwanga, S., 2020. Company Performance: Are Environmental, Social, and Governance Factors Important. *International Journal of Technology*, Volume 11(8), pp. 1468–1477
- Kotha, S., Shin, S. J., Fisher, G., 2022. Time to Unicorn Status: An Exploratory Examination of New Ventures with Extreme Valuations. *Strategic Entrepreneurship Journal*, Volume 16(3), pp. 460–490
- Pishchalkina, I., Pishchalkin, D., Suloeva, S., 2022. Research of the Efficiency of Mining and Metallurgical Enterprises Based on the Environmental, Social, and Governance Risk Rating in the Context of Digital Transformation. *International Journal of Technology*, Volume 13(7), pp. 1442–1451
- Sala-i-Martin, X. 2016. The Global Competitiveness Report 2016–2017. World Economic Forum. Available online at <https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1/>, Accessed on September 17, 2023
- Stam, E., 2018. Measuring Entrepreneurial Ecosystems. In *Entrepreneurial Ecosystems: Place-Based Transformations and Transitions*. Springer

- Stam, E., Garnsey, E., 2008. Entrepreneurship in the Knowledge Economy. In *Creating Wealth from Knowledge. Meeting the Innovation Challenge*. Springer
- Venâncio, A., Picoto, W., Pinto, I., 2023. Time-to-unicorn and Digital Entrepreneurial Ecosystems. *Technological Forecasting and Social Change*, Volume 190, p. 122425
- World Economic Forum, 2017. The universities that produce the most unicorn founders? Stanford, Harvard, UC – and the Indian Institutes of Technology. Available online at <https://www.weforum.org/agenda/2017/03/the-universities-that-produce-the-most-unicorn-founders-stanford-harvard-uc-and-the-indian-institutes-of-technology/> Accessed on 17.09.2023
- Yusupova, A.T., Ryazantseva, A.V., 2022. High-Tech Entrepreneurship in the Russian Regions: Conditions for the Emergence of New Companies. *Regional Research of Russia*, Volume 12(2), pp. 143–153