Innovations

Identifying the Influence of the Institutional Environment on Innovative Entrepreneurship on the Example of Small and Medium-sized Enterprises in Tbilisi

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Abstract: *The objective of the study is to determine the influence of the institutional environment on innovative entrepreneurship of small and medium-sized enterprises in Georgia. The paper consists of three main parts. The first part provides a theoretical framework and describes the nature of the institutional environment and the influence of its main factors on innovative entrepreneurship. The second part presents the research methodology and hypotheses. Data was collected by means of a questionnaire using a Likert scale from 1 to 7.A total of 160 respondents of the survey were representatives of small and medium-sized enterprises in Tbilisi. The third part is empirical, namely, the regression model used and the final results: rejected and accepted hypotheses.It also discusses the findings of the analysis and suggests recommendations.*

Keywords: *Institutions, Institutional Environment, Innovative Entrepreneurship, SMEs, R&D*

Introduction

Institutions that regulate innovation processes are of particular importance in the modern economy. Such institutions include the institutions of property, regulatory institutions, institutions that determine the operation of enterprises, institutes of competition, institutes of knowledge, etc. They act as a necessary basis for the formation of the institutional environment and at the same time as institutional factors in the development of the innovative economy.

A high-quality institutional environment is one of the most important prerequisites for a country's healthy economic development. The competitiveness of enterprises is largely determined by the environment in which they develop their business activities. It is well known that the mechanisms of the innovative economy cannot function effectively without certain institutions. In addition, favourable conditions of the existing institutional environment are necessary to ensure the competitiveness and sustainability of innovative entities. Therefore, the process of innovative economy formation and development should run parallel to formation and development of relevant institutions.

The institutional environment defines the type of economic growth, its quality and efficiency, and underlies the conditions that determine socio-economic development. In his research, R. Nelson examines the national innovation system as an interconnected system of all elements of the economic activity of a society and emphasises the importance of the influence of the institutional environment on the dynamics of innovation and the creation of incentives. The foundation for the formation of the national innovation system is the institutional environment.

Literature review

Small and medium-sized enterprises (SMEs) are an important factor in ensuring dynamic entrepreneurial development.They are also a necessary condition for the functioning of the innovative economy. Their activities are aimed at the creation of innovative products and their successful commercialisation. Small innovative enterprises are supposed to open up new market segments, develop and introduce new products and technologies and be the main suppliers of products, thereby increasing the intensity of knowledge in production field and competitiveness and contributing to the formation of a new technological order.

In the modern world, the innovation activity is linked to three main components.The first is fundamental science, which generates the stock of knowledge needed to open up new paths of developments in technology and production. Second, it is innovative entrepreneurship, which is necessary to transform breakthrough scientific inventions into technologies that can occupy market niches with specific organisational forms. The third is the institutional environment, which can be defined as a structured set of institutions, routines and rules that determine the shaping of the space of opportunities, incentives, constraints and behaviour patterns (models) of the main actors involved in innovation activities.The term 'institutional environment' encompasses formal and informal institutions, local rules and even contracts, i.e. everything that creates the conditions and opportunities for actors to engage in transactions. In the neo-institutional tradition, the institutional environment is frequently seen as the set of rules and regulatory institutions that provide the framework for the main economic actors (Andersen, 2006, p. 11).

National innovation systems are underpinned by institutional environment where the innovation activities are carried out.Based on the enforcement mechanisms, institutions are divided into formal (sanctioning, legal) and informal institutions (North, 1989).It is reasonable to distinguish three broad groups of institutions containing three main components of innovation activities.

The group of 'legal and judicial institutions' includes a number of formal and informal institutions that set and support the 'rules of the game' in the innovation market. In the first place, it includes institutions that have been created to regulate business activities in general. This is legislation (and the system of legislative bodies at various levels, including the rules of their functioning, the possibility of formal and informal influence on these bodies as a whole or as individual groups that make them up).The following are legal institutions regulating specific issues related to the knowledge diffusion, technologies, the rules for their use, protection of rights and legitimate interests of copyright holders.Judicial institutions ensure the protection of rights through a system of courts of general jurisdiction, courts of arbitration, organisations and individuals conducting mediation procedures.

The group of ‘‘provider’’ consists of institutions that provide the resource component of innovation activities. The main resource of the innovator is knowledge, technology, inventions and discoveries suitable for commercialisation. The rest of the resources are the elements necessary for the infusion and diffusion of the innovation.The necessary elements for this are staff with appropriate training, experience and competencies; financial resources needed to acquire relevant patents, etc. They may be formal or informal.

For any entrepreneur, it is only through the existence of an effective demand of sufficient scale that the goal of its activity - to make a profit - is achieved.This demand forms the market for innovative goods and services. The state has a significant influence on the development of the market for innovative goods and services, both direct(for example, through the state order system) and indirect (through bans on the use of certain goods, by encouraging the use of goods of certain quality and novelty, etc.).This group of institutions also includes both formal and informal institutions.

Information institutions, as the most important element of the institutional environment, are present to some extent in all groups of institutions of innovation activities. Finally, from the perspective of historical development, great importance is attached to informal institutions that are determined by national characteristics.

First and foremost, formal institutions, which determine the order of interaction between the state and business, constitute the legal and regulatory framework of entrepreneurial activity.From the perspective of Georgian legislation, innovative entrepreneurship is primarily anentrepreneurial activity.Like any other business activity, it depends on the general rules of business in the country.In this legal

complex, the legislation on small and medium-sized enterprises occupies a special place.

A large part of the academic literature has been devoted to the topics of institutions, innovative entrepreneurship and economic growth, but most of the work has been focused on entrepreneurship and institutions independently.

In his original study, Solow found that only 13% of US GDP growth was due to growth in measured inputs, labour and capital, while the rest was explained by technological change. At that time, entrepreneurship and institutions were not mentioned in the context of economic growth(Solow, 1956).

In Martin Weitzman's paper, the author compared the economic growth of the USA and the USSR. He concluded that the institutional structure and encouragement of entrepreneurship, rather than the availability of new technologies, was the reason for the difference between the two countries (Weitzman, 1970).

According to Baumol, even with the same number of entrepreneurs, the institutional structure determines the distribution of productive and unproductive activities (Baumol, 1996).Therefore, countries with weak institutions will not be able to stimulate productive entrepreneurship.These trends persisted afterwards. Former socialist countries were also found to have low levels of productive entrepreneurial activity(Aidis, Estrin, and Mickiewicz, 2008).

In 2000, Busenitz, Gomez and Spencer analysed the influence of institutional factors from an entrepreneurial perspective. They identified the reason for the difference in entrepreneurial activities between countries and confirmed that country's institutional environment is an indicator in the field of entrepreneurship (Busenitz, Gomez, and Spencer, 2000).

In 2010, researchers continued to find links between entrepreneurship and institutions. Braunerhjelm, Acs, Audretsch & Carlsson found a correlation between economic growth and knowledge diffusion. Their findings suggest that policies that encourage entrepreneurship also help to improve how knowledge gets diffused. Consequently, all this has a positive impact on economic growth.In addition, according to Autio and Fu, a strong entrepreneurial ecosystem and institutions have a higher likelihood of having a technological impact on economic growth (Autio& Fu, 2015).

In 2013, Stenholm, Acs and Wuebker investigated how differences in the institutional environment have an impact on entrepreneurial activity and its nature. The research findings showed that entrepreneurial activity is influenced by institutional mechanisms.Regulatory environment has been identified as a less important mechanism for developing high quality entrepreneurial activity, while knowledge diffusion and access to capital have been found to be crucial (Stenholm, Acs and Wuebker, 2013).

Research methodology

The research uses a quantitative methodology. In order to evaluate the institutional environment, the main factors of the institutional environment were selected, such as: market, financial, scientific-research, legal and information institutions.The data was collected using the questionnaire method, i.e. the respondents were provided with statements tailored to the purpose of the study. The questionnaire consisted of 7 parts. The first part concerned the general profile of the participating enterprises (number of employees in the enterprise, their activitiesby years and distribution of the enterprises by types of their activities). Parts 2 to 6 dealt with each institution and the last part was about innovative entrepreneurship.

Based on the research objectives, the framework of the research was the active enterprises in Tbilisi - 23,856 enterprises, as of the month of May 2024.The data was taken from the Business Registry of the National StatisticsOffice of Georgia.After the cleaning of the database, 10,000 enterprises were randomly selected from the e-mail database. An online questionnaire specially designed for the study was then sent to these enterprises.A total of 160 enterprises replied to the questionnaire. The research was carried out in the month of June 2024.

Research hypotheses

Based on our research questionnaire, we formulated the following hypotheses:

H1: Access to reliable market information positively influences the innovative activities of SMEs.

H2: Financial support from institutions enhances the innovation capacity of SMEs.

H3: Collaboration with scientific research institutions boosts SMEs' innovation efforts.

H4: A supportive legal framework facilitates innovation in SMEs.

H5: Access to informational resources and networks is positively related to the innovation performance of SMEs.

Results and Discussion

Of the 18 questions included in the questionnaire, we grouped the responses on a 7-point Likert scale (1 - "Completely disagree" and 7 - "Completely agree"). All the variables change in the same direction.

Table 1. Reliability Statistics

Cronbach's Alpha	N of Items
.903	18

Source: Author's Computation (2024)

According to our data, the result table of 18 provisions is as follows. Items Q4, Q6, Q16, Q17, Q20, and Q21 have a relatively high scores (over 4.0), indicating that these statements were the most agreed upon by the respondents. However, judging by the mean scores, there are more respondents with low scores than with high scores.

Most statements have standard deviations greater than 1.5, indicating variability in the responses. The overall sample shows varying levels of agreement, indicating that respondents more or less agreed with the statements.

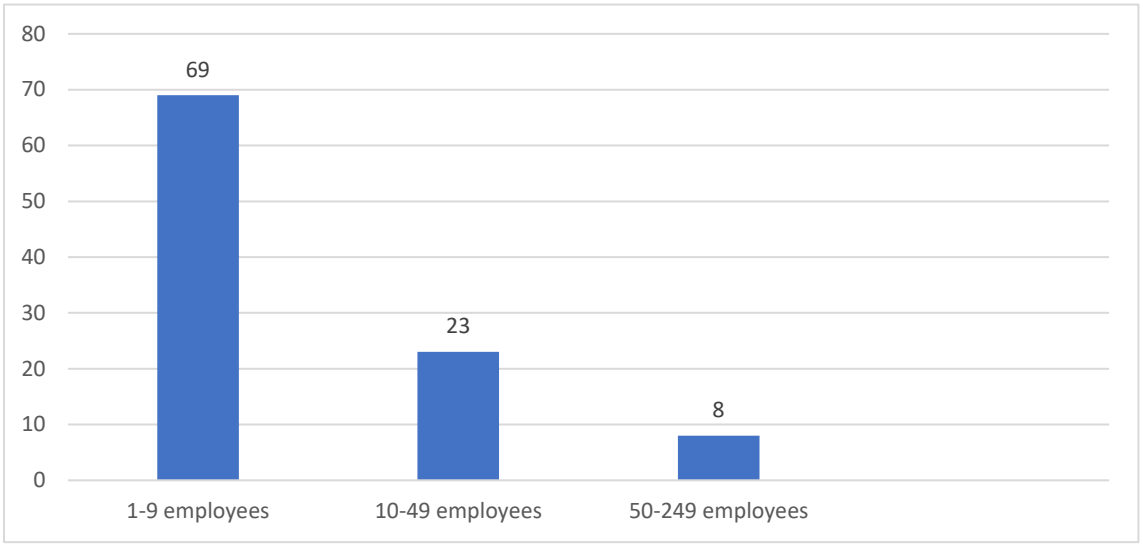
Table 2. Descriptive Statistics

	N	Min	Max	Mean	Std.Deviation
Q4	160	1	7	4.04	1.719
Q5	160	1	7	3.91	1.531
Q6	160	1	7	4.54	1.529
Q7	160	1	7	3.51	1.574
Q8	160	1	7	3.59	1.531
Q9	160	1	7	1.88	1.409
Q10	160	1	7	2.34	1.812
Q11	160	1	7	2.80	1.886
Q12	160	1	7	2.91	1.832
Q13	160	1	7	3.43	1.624
Q14	160	1	7	3.64	1.544
Q15	160	1	7	3.52	1.392
Q16	160	1	7	4.29	1.721
Q17	160	1	7	4.54	2.009
Q18	160	1	7	3.22	2.005
Q19	160	1	7	3.62	1.549
Q20	160	1	7	4.17	1.634
Q21	160	1	7	5.00	1.856
Valid N (listwise)	160				

Source: Author's Computation (2024)

The chart below shows the distribution of enterprises by number of employees. Enterprises with 1 to 9 employees appear to have the largest share (69%).

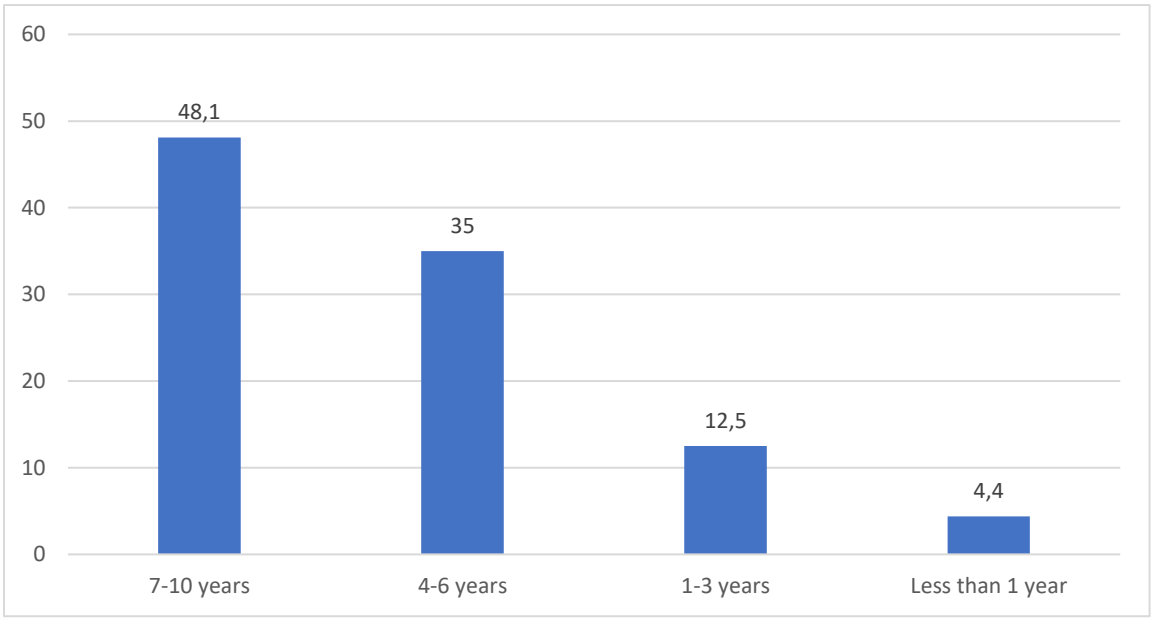
Chart 1. The distribution of enterprises by number of employees (%)



Source: Author's Computation (2024)

The chart below shows the performance of the companies by years. As we can see from Chart 2, most enterprises (48.1%) have been operating for 7-10 years.

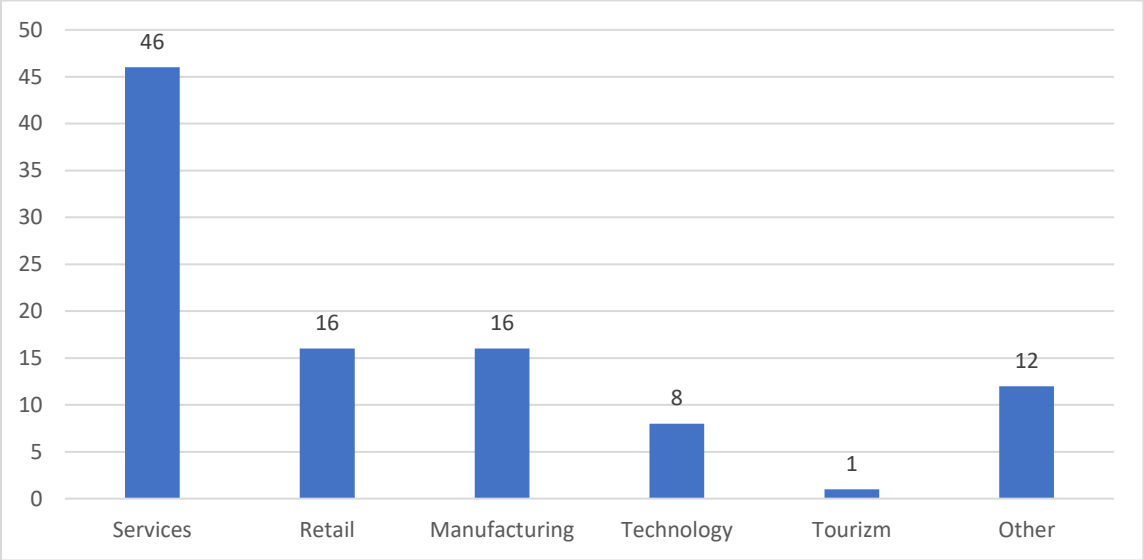
Chart 2. The performance of the companies by years (%)



Source: Author's Computation (2024)

Chart 3 shows the distribution of enterprises by types of activity. Among the activities of the enterprises included in the research, the service sector is the most common - 46%.

Chart 3. The distribution of enterprises by types of activity (%)



Source: Author's Computation (2024)

Regression model

We used the data collected through the questionnaire to build a regression model, where we analysed the relationships between the independent variables (market, financial, R&D, legal and information institutions) and the dependent variable (innovative entrepreneurship). To calculate the innovative entrepreneurship score, we need a composite score based on the answers to the relevant questions. The steps required to obtain this score are described below:

• Select relevant questions: questions that are directly related to the effectiveness of the innovation. In this case, the questions in the last section (Overall Impact of Institutions on Innovation) are most relevant for calculating the innovation performance score.

• Calculate individual scores: individual score responses to the relevant question (which are on a 7-point Likert scale).

• Aggregate scores: sum the individual scores to get a composite innovation performance score.

Below are the 3 questions we used to calculate the innovative entrepreneurship score:

Q19: Overall, institutions in Georgia support our SME's innovative efforts effectively.

Q20: The combined impact of market, financial, R&D, legal, and informational institutions significantly enhances our innovation capacity.

Q21: Institutional support has been crucial for the success of our innovative projects.

The score of innovative entrepreneurship according to the Likert scale can range from 3 to 21 points. Higher scores indicate a stronger perceived impact of institutions on innovation entrepreneurship within SMEs.

We used the following method to compile predictive, i.e. independent, variables.

• Market institutions: average of scores for questions Q4, Q5 and Q6.

• Financial institutions: average of scores for questions Q7, Q8 and Q9.

• Scientific research institutes: average of Q10, Q11 and Q12 questions.

• Legal institutions: average of scores for questions Q13, Q14 and Q15.

• Information Institutes: Average of scores for questions Q16, Q17 and Q18.

The equation of our regression model has the following form:
$Yi = \beta 0 + \beta 1(\text{Market Institutionsii}) + \beta 2(\text{Financial Institutionsii}) + \beta 3(\text{Scientific-research Institutionsii}) + \beta 4(\text{Legal Institutionsii}) + \beta 5(\text{Information Institutionsii}) + \varepsilon i$
where Y is the Innovative Entrepreneurship
$\beta 0$, $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$ and $\beta 5$ - regression coefficients to be evaluated
εi - error

Below are the result tables of the regression model obtained using the SPSS programme.Table 3 shows that the coefficient of determination is 0.395. This means that 39.5% of the variation in the dependent variable in the model is explained by the predictor variables (market, financial, scientific, legal and information institutions).Therefore, it can be assumed that these variables will serve to a greater

or lesser extent as explanatory variables in the regression model. In Table 4 below, we can see that the regression model is significant, as the significance level is less than 0.05. We can therefore proceed with the analysis of the model.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.628[a]	.395	.375	3.211
a. Predictors: (Constant), Information_Institutions, Financial_Institutions, Market_Institutions, Scientific_Institutions, Legal_Institutions				

Source: Author's Computation (2024)

Table 4. Anova

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1035.343	5	207.069	20.088	.000[b]
	Residual	1587.432	154	10.308		
	Total	2622.775	159			
a. Dependent Variable: Innovative Entrepreneurship						
b. Predictors: (Constant), Information_Institutions, Financial_Institutions, Market_Institutions, Scientific_Institutions, Legal_Institutions						

Source: Author's Computation (2024)

The estimated regression coefficients are shown below.As can be seen from the table, each of the coefficients has a positive sign.However, only one of these five predictor variableswas found to be statistically significant. This is the variable of the information institutions. The level of significance corresponding to this variable is less than 0.05. In the case of the other variables, the significance level is above 0.05. Therefore, we can conclude that only the 5th of our 5 hypotheses is confirmed:access to information resources and networks is indeed positively related to the innovation activity of small and medium-sized enterprises.As for the first 4 hypotheses, according to the data of our research, they could not be confirmed. This is because the predictor variables in the regression model had insufficient influence on the dependent variable of innovative entrepreneurship.

Table 5. Coefficients

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.715	1.004		4.698	0.000		
	Market_Institutions	0.209	.282	.062	.741	0.460	.566	1.765
	Financial_Institutions	0.225	.327	.063	.687	0.493	.472	2.118
	Scientific_Institutions	0.203	.225	.077	.899	0.370	.531	1.884
	Legal_Institutions	0.382	.275	.123	1.390	0.166	.506	1.975
	Information_Institutions	1.156	.221	.423	5.218	**0.000**	.597	1.674
a. Dependent Variable: Innovative Entrepreneurship								

Source: Author's Computation (2024)

Conclusions and recommendations

Based on the research objectives, a questionnaire was prepared and distributed in electronic form to the e-mails of the enterprises. The questionnaire was sent to 10,000 active enterprises registered in Tbilisi.A total of 160 enterprises filled in our questionnaire, on the basis of which we tested the hypotheses.

Our aim was to show how market, financial, R&D, legal and information institutions influence innovative entrepreneurship in small and medium-sized enterprises. To this end, we built a linear regression model. The variables of the model were derived based on the results of the questionnaire.Our dependent variable was innovative entrepreneurship, to which we have linked 5 predictor variables.

We tested our 5 hypotheses using regression model. According to the result table, each coefficient had a positive sign.However, of these 5 predictor variables, only the influence of information institutions was found to be statistically significant. Therefore, we can conclude that only the 5th of our 5 hypotheses is confirmed:access to information resources and networks is indeed positively related to the innovative activity of small and medium-sized enterprises.

The main factors for the development of the country's competitiveness and the increase in the level of innovation activities should be: the reduction of

administrative and institutional barriers for businesses; the development of a favourable business environment for the introduction of innovations (more than 65% of the surveyed enterprises state that market conditions do not sufficiently support the development of innovations); the integration of state resources into the capital of industrial enterprises; the simplification of procedures for the regulation of innovations; the development of new areas for the introduction of high technologies; the support of the research sector.

Since the Georgian economy is characterised by the predominant role of the state in financing innovation, it is necessary to create effective institutions for financing the innovation sector. Our survey showed that 64.7% of small and medium-sized enterprises do not use government grants or subsidies aimed at innovating. It is worth noting here that government programmes should be directed towards the industrial sector of the economy, where one of the key points is scientific and technological progress and innovation in production.

Only on the basis of a reasonable combination of scientific and technological potential and formation of a competent field of introduction of innovations it is possible to create a full-fledged institutional environment promoting innovation and economic growth in the Georgian economy. Creation of a favourable climate for innovation is possible only with the co-operation of all interested parties, such as the state, private business, scientific organisations, etc. This is borne out by the fact that 57.3% of the enterprises questioned reported no cooperation with universities and research institutes in the field of innovation. And 40.8% said they do not have access to state-of-the-art research and development facilities to support their innovation efforts.

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Appendix

Section A: General Information

1. How many employees does your SME have?
    - 1-9 employees
    - 10-49 employees
    - 50-249 employees
    - 250+ employees
2. How long has your SME been in operation?
    - Less than 1 year
    - 1-3 years
    - 4-6 years
    - 7-10 years
    - More than 10 years
3. What sector does your SME operate in?
    - Manufacturing
    - Services
    - Technology
    - Retail
    - Other (please specify)

Section B: Market Institutions

4. Our SME has access to reliable market information that supports our innovative activities.
    - 1 2 3 4 5 6 7
5. Market conditions in Georgia are conducive to innovation.

- 1 2 3 4 5 6 7

6. We frequently collaborate with other businesses in the market to enhance our innovation.
   - 1 2 3 4 5 6 7

Section C: Financial Institutions

7. We have access to sufficient financial resources to support our innovative projects.
   - 1 2 3 4 5 6 7
8. Financial institutions in Georgia provide adequate support for innovation.
   - 1 2 3 4 5 6 7
9. We benefit from government grants or subsidies for innovation.
   - 1 2 3 4 5 6 7

Section D: Scientific-Research (R&D) Institutions

10. Our SME collaborates with universities or research institutes for innovation.
    - 1 2 3 4 5 6 7
11. We have access to advanced R&D facilities to support our innovative activities.
    - 1 2 3 4 5 6 7
12. Scientific research in Georgia contributes significantly to our innovation efforts.
    - 1 2 3 4 5 6 7

Section E: Legal Institutions

13. The legal framework in Georgia supports our innovative activities.
    - 1 2 3 4 5 6 7
14. We find it easy to protect our intellectual property rights in Georgia.
    - 1 2 3 4 5 6 7
15. Regulatory procedures for innovation are straightforward and not burdensome.
    - 1 2 3 4 5 6 7

Section F: Informational Institutions

16. We have access to up-to-date information on market trends and technological advancements.
    - 1 2 3 4 5 6 7
17. Information and communication technologies (ICT) support our innovation processes effectively.
    - 1 2 3 4 5 6 7

18. We participate in informational networks or clusters that foster innovation.
    - 1 2 3 4 5 6 7

Section G: Overall Impact of Institutions on Innovation

19. Overall, institutions in Georgia support our SME's innovative efforts effectively.
    - 1 2 3 4 5 6 7
20. The combined impact of market, financial, R&D, legal, and informational institutions significantly enhances our innovation capacity.
    - 1 2 3 4 5 6 7
21. Institutional support has been crucial for the success of our innovative projects.
    - 1 2 3 4 5 6 7