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INFORMATION SOURCES ON INNOVATIONS AND INNOVATIVE ACTIVITIES FOR ENTREPRENEURSHIP DEVELOPMENT – VIEWS OF ENTREPRENEURS IN KURZEME REGION

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Abstract
Innovations are very important condition and tool for competitive entrepreneurship. To obtain more effective approaches, researchers are devoting deepened analysis for many factors influencing innovations and innovative activities indicating that there is an important influence on different sources of information on innovations – own company, co-operation with universities and business incubators, with research organisations. Empirical research results were based on survey results of entrepreneurs and on analysis of obtained survey results by use of descriptive statistics indicators confirmed that entrepreneurs in Kurzeme region biggest inspiration get in their own company as well as from suppliers of equipment, programs and materials but they have less influence on information about innovations from universities and other higher education institutions as well as private organisations, also research organisations.
Key words: innovations, density of innovative companies, information sources on innovations.

Introduction

Innovations are becoming more and more required for successful entrepreneurship and it takes place in all developed countries to be competitive internationally. Those aspects are on deep analysis by researchers around the globe pointing out several aspects and indicating initiatives and sources having influence on successful applications of innovations and innovative activities. The aim of this research is to suggest most important aspects influencing innovations in companies based on entrepreneur's survey in Kurzeme region. Tasks of this paper are as follow: 1) consider several aspects recognized by researchers as important for innovations in entrepreneurship, especially in the regional aspect; 2) analyse the tendencies of density of innovative enterprises in different fields (industry, manufacturing, services and total) in Latvia; 3) suggest the most important sources of information on innovations by entrepreneurs. Researchers have indicated that initiatives and inspiration for innovations has several roots (Mitra *et al*., 2011; Stefenberga *et al*., 2022) where knowledge creation and human capital (Maalaoui *et al*., 2020; Smith *et al*., 2022) is of great importance. Actual are issues on energy prices (Hussain *et al*., 2022) which influence innovations. For information on innovations, marketing aspects are also important (Cacciolatti & Fearne, 2013; Braslina *et al*., 2020; Braslina *et al*., 2021; Behmane *et al*., 2021) getting more and more recognition and practical application by entrepreneurs. Analysis of several business models (Silva *et al*., 2020) and communication with different social levels (Seimuskane *et al*., 2017) has led to practical and research based recommendations where digital solutions (Sergejeva *et al*., 2022; Sloka *et al*., 2017), technological aspects (Bikse *et al*., 2022) and approaches (Kitsios & Kamariotou, 2019) as well as financial aspects (Romanova *et al*., 2018; Roundy, 2018) are of great importance for practical innovations creation. In different fields (Petrolo *et al*., 2022; Daugėlienė, 2020; Ahmad *et al*., 2023) as well as traditions and approaches in different countries (Xia *et al*., 2020; Jones *et al*., 2021; Andersone *et al*., 2021) and in regions (Sotarauta *et al*., 2023; Šimanskienė *et al*., 2022) are specific conditions and factors influencing innovations have to be taken into consideration and respected for decision-making in entrepreneurship.

Materials and Methods

The research results reflected in the current paper are based on statistical data analysis in Official Statistics database of Republic of Latvia and entrepreneurs in Kurzeme region survey on several aspects related to innovations in entrepreneurship, role of different information channels to gain most effective source of information for innovations by the evaluations of entrepreneurs to develop their business and be competitive. For deeper analysis there were applied questions with invitation to make evaluations by entrepreneurs using evaluation scale with evaluations 1–10 to reflect better the views of

entrepreneurs on each analysed aspect. Evaluations are analysed by indicators of descriptive statistics: indicators of central tendency or location (arithmetic mean, mode, median), indicators of variability (range, standard deviation and standard error of mean).

Results and Discussion

Innovations are becoming more and more important around the globe and also in all branches in Latvia. Data indicate that all enterprises introduce more innovations and innovative activities. The data of Official statistics (Official Statistics, 2023) in Republic of Latvia on density of innovative enterprises depending on the company size by employees in the company every second year from 2008 till 2020 are reflected in Figure 1.

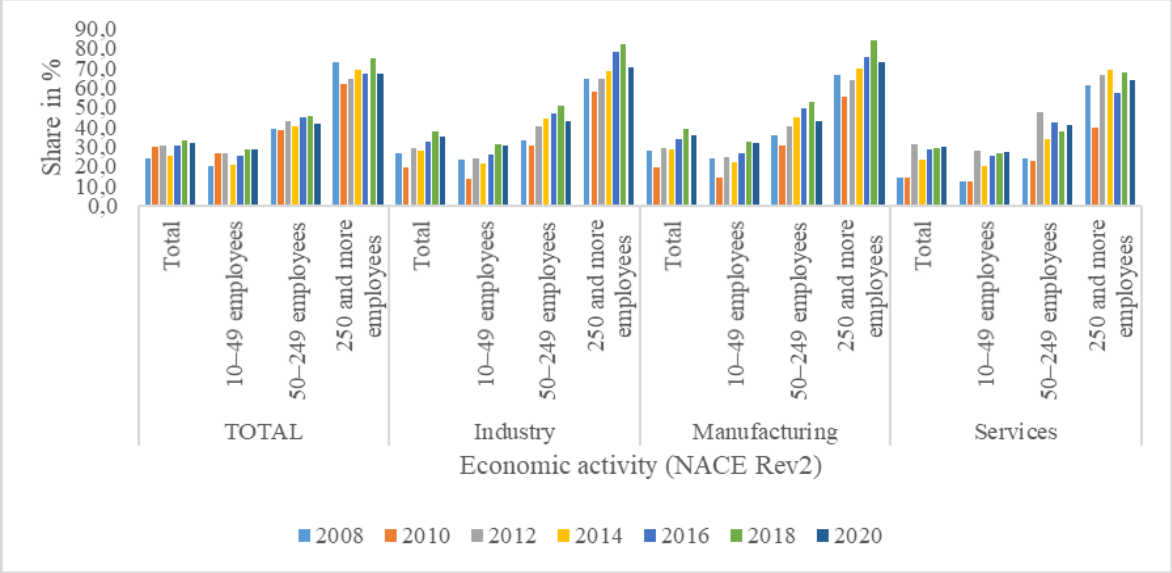

Figure 1. Density of innovation-active enterprises by economic activity (NACE Rev.2) by number of persons employed in 2008–2020 in Latvia.
Source: Author's construction based on Official Statistics portal database IUS010.

Data reflected in Figure 1 indicate that density of innovation-active enterprises are in enterprises with more than 250 employees and more innovation active enterprises are in industry and manufacturing, but less in services. This has been indicated by data on innovative-active enterprises in the last period 2019-2020 compared to two previous periods. Innovations introduction and support of their realization is created by entrepreneurs and theoretical analysis of scientific publications has confirmed that ministries and government agencies, research organisations and laboratories, private organisations, universities and other higher education institutions, fairs and exhibitions, professional literature, press and databases, professional conferences, meetings, industry/production professional standards, health and safety regulation standards, environmental regulation standards, other company in respective company group, own company, suppliers of equipment, programs and various materials have the influence. On those aspects for evaluation were invited entrepreneurs to make their evaluations in scale 1–10, where 1 – not important; 10 – very important. Results using descriptive statistics are included in Tables 1–3.

Judging by their evaluations, entrepreneurs have indicated that ministries and government agencies, research organisations and laboratories, private organisations, universities and other higher education institutions do not have important influence on their information in innovations – the evaluations on entrepreneurs have the lowest arithmetic mean and modes of those evaluations were 1 – it means that those sources are evaluated as not important for entrepreneurs for information on innovations. The differences in evaluations by entrepreneurs the biggest are for private organisations – there are the biggest indicators of variability (standard deviation and standard error of mean) and the highest evaluation used by entrepreneurs for evaluations was 8, half of entrepreneurs gave evaluation 3 or less and half of entrepreneurs gave evaluation 3 or more – characterised by median, arithmetic mean of the evaluations here was 3.6.

Table 1

Main statistical indicators on evaluations of entrepreneurs on sources of information on innovations/ innovative activities

Statistical indicators		Ministries or government agencies	Research organizations, laboratories	Private organizations	Universities, higher education institutions
N	Valid	30	31	30	30
	Missing	7	6	7	7
Arithmetic mean		3.67	3.65	3.60	3.40
Standard error of arithmetic mean		0.430	0.439	0.454	0.411
Median		3.5	3	3	3
Mode		1	1	1	1
Standard-deviation		2.354	2.443	2.486	2.253
Variance		5.540	5.970	6.179	5.076
Range		8	9	7	7
Minimum		1	1	1	1
Maximum		9	10	8	8

Source: Author's calculations based on Dace Stefenberga conducted survey results, Evaluation scale 1–10, where 1 – not important; 10 – very important.

Table 2

Main statistical indicators on evaluations of entrepreneurs on sources of information on innovations/ innovative activities

Statistical indicators		Fairs, exhibitions	Professional literature, press, databases	Professional conferences, meetings	Industry/ production technical standards	Health and safety regulations and standards	Environmental regulations and standards
N	Valid	30	29	30	30	30	30
	Missing	7	8	7	7	7	7
Arithmetic mean		4.50	5.79	4.93	4.77	4.27	4.00
Standard error of arithmetic mean		0.550	0.469	0.500	0.509	0.536	0.472
Median		4.5	7	5	5	3.5	4
Mode		1	7	1; 5	1; 6	1	1
Standard-deviation		3.014	2.527	2.741	2.788	2.935	2.586
Variance		9.086	6.384	7.513	7.771	8.616	6.690
Range		9	9	8	8	9	8
Minimum		1	1	1	1	1	1
Maximum		10	10	9	9	10	9

Source: Author's calculations based on Dace Stefenberga conducted survey results, Evaluation scale 1–10, where 1 – not important; 10 – very important.

Entrepreneurs have indicated that fairs and databases, professional conferences, meetings, exhibitions, professional literature, press and industry/production professional standards, health

and safety regulation standards, environmental regulations and standards have medium influence on their information in innovations – the evaluations on entrepreneurs have rather low arithmetic means and in several cases modes of those evaluations were 1 – it means that those sources are evaluated as not very important for fairs and exhibitions for information on innovations, half of entrepreneurs gave evaluation 4 or less and half of entrepreneurs gave evaluation 5 or more – characterised by median which in the evaluations for this aspect was 4.5. The differences in evaluations by entrepreneurs the biggest are for fairs and exhibitions – there are the biggest indicators of variability (standard deviation and standard error of mean) and all evaluation scale is covered by the entrepreneurs. Professional literature, press and databases were considered as more important by the entrepreneurs as arithmetic mean of the evaluations by entrepreneurs was 5.79 and most of the evaluations by entrepreneurs was 7 (characterised by mode), half of entrepreneurs gave evaluation 7 or less and half of entrepreneurs gave evaluation 7 or more – characterised by median.

Table 3

Main statistical indicators on evaluations of entrepreneurs on sources of information on innovations/ innovative activities

Statistical indicators		Another company in your company group (both in Latvia and abroad)	Your company	Suppliers of equipment, programs and various materials
N	Valid	31	31	30
	Missing	6	6	7
Arithmetic mean		6.13	6.77	6.23
Standard error of arithmetic mean		0.516	0.526	0.436
Median		7	8	7
Mode		8	9	8
Standard-deviation		2.872	2.929	2.388
Variance		8.249	8.581	5.702
Range		9	9	9
Minimum		1	1	1
Maximum		10	10	10

Source: Author's calculations based on Dace Stefenberga conducted survey results, Evaluation scale 1–10, where 1 – not important; 10 – very important.

Entrepreneurs have indicated that other company in respective company group, own company, suppliers of equipment, programs and various materials – the evaluations on entrepreneurs have rather high arithmetic means and modes of those evaluations were 8 and 9 – it means that those sources are evaluated as very important for information on innovations, half of entrepreneurs gave evaluation 8 or less and half of entrepreneurs gave evaluation 8 or more for other company in respective company group and for suppliers of equipment, programs and various materials – characterised by median, for own company median of the entrepreneurs evaluations was 8. The differences in evaluations by entrepreneurs the biggest are for own company – there are the biggest indicators of variability (standard deviation and standard error of mean) and all evaluation scale is covered by the entrepreneurs. Own company information for innovations were considered as more important by the entrepreneurs as arithmetic mean of the evaluations by entrepreneurs was 6.77 and most of the evaluations by entrepreneurs was 9 (characterised by mode), half of entrepreneurs gave evaluation 8 or less and half of entrepreneurs gave evaluation 8 or more – characterised by median. It means that entrepreneurs believe in their own companies and their views.

Conclusions

1. Density of innovation – active enterprises is growing in all fields in Latvia with a bigger share for enterprises with 250 and more employees and in industry and manufacturing but growing also for services.
2. Entrepreneurs have indicated that the most important sources of information on innovations are in their own company as well as for suppliers of equipment, programs and various materials.

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