DRIVERS OF INNOVATION ACTIVITY IN EUROPEAN COUNTRIES: PROACTIVE VS. REACTIVE APPROACH

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ABSTRACT

Innovation is considered to be the key for sustaining long term growth of economies, which is proven by inclusion of this topic in strategic documents of European countries as well as European Commission, the triggers of innovation activity can not be perceived unanimously. Our findings show that innovative countries have independent, self-regulating and mature innovation systems within organizations while less innovative, in our case Czech republic is highly dependent on the government support with the regression coefficient 0.5 significant at p<0.01 level. Research tool used was an electronic questionnaire distributed directly to representatives of companies in Czech Republic, Austria and Germany during the period of 2015-2016 as a part of research project. For the analysis of data, Person correlation test was used to identify significant dependencies among variables, with further analyzing the strength and effect through multiple regression analysis. Results of statistical analysis presented in the research paper point to the markant difference between developed and innovative countries represented in AT - DE region compared to less innovative Czech Republic within the concept and effect of government and European funding and innovation support.

Keywords: Proactive Approach, Reactive Approach, Innovation, Clusters, Competitiveness

INTRODUCTION

At the beginning of the 21st century Europe is far from this position of global leadership. Few of the global tech companies that emerged over the past 20 years come from Europe. Many promising European start-ups have relocated to the US where the level of venture capital funding is five times greater than in Europe. Not only may we have lost the battle in digital technologies, we are now facing a very real risk of being overtaken by Asia, China in particular. This should be a major, if not the major, concern of policy makers in Europe where ageing populations and limited natural resources call for innovative solutions and new sources of growth (European Commission, 2018).

The central topic of countries from a global perspective is the economic growth that governments and government officials want to be achieved with various instruments and action plans (Jurenka et al., 2017). In its strategy, the European Union has set itself the objective of promoting competitiveness and economic growth by fostering innovation among all member states. However, in spite of the long-standing debate and the support tools implemented, we still see different performance of the individual member states, as expressed in several rankings of innovation (European Innovation Scoreboard 2019 country ranking.).

This difference arises despite strong support in the form of grants and European Structural Funds targeted at weaker regions, which do not lead to the desired results in the long run (Hulenyi et al., 2018). It is caused by several factors. One of them is the diversity of the use of individual

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European support funds in EU member states, for example in 2017, the Czech Republic drew only 3.9% (EUR 152 million) of total EU expenditure from EU funds, Slovakia 12% (EUR 191 million). Hungary drew at 8% (EUR 340 million), Germany 22% (EUR 2.37 billion), France 19% (EUR 2.59 billion) and Austria 21% (€ 362 million), with the EU28 average being 14%. (European Commission and Eurostat 2017). The study by Prokop, Stejskal & Kuvíková (2017). demonstrated that individual drivers help to start innovative activities, but in the conditions of the Czech and Slovak Republics, their application did not show effects in all expected attributes.

Based on its own audit of the use of Eurofunds to support the business environment, the EU itself in Special Report 08/2018 states the need to increase attention to the sustainability of productive investments in companies (Urbanič, Franková, Balko, Cazzaniga & Korzunienė, 2018). However, the report states that the aim of the grants is to help strengthen SMEs to contribute more to stimulating economic growth. In their study, Johnson and Medcof compared different types of organizational groups and management practices, trying to identify the degree of pro-innovation behavior in each setting. The output is the fact that the network structure is the largest and most powerful generator of innovations that are initiated at the company level. (Johnson & Medcof, 2007), which suggests that a network organizational structure is the most appropriate to support proactive behavior at both the enterprise and business community levels. Clusters as a form of cooperation can be considered most effective in several areas (Hitka et al., 2017; Poór et al., 2017; Kucharčíková & Mičiak, 2018). In order to support the creation of entrepreneurial innovative communities, one of the conditions for applicants for selected grants was to act only as a consortium. However, if consortia were created artificially, only to ensure that companies were eligible to apply for project support, the benefits for the region, in particular economic growth, and additional jobs were not achieved in these cases. This conclusion was also set out in the 2014 OECD study: "Italy: Key Issues and Policies", OECD Study on SMEs and Entrepreneurship.

Another reason is the different support for Member States themselves in the field of innovation. For example, in an effort to support the competitiveness and innovation of companies, the Government of the Slovak Republic proposed in 2015 a tax relief of 25% of expenditure on research and development. And in 2015, companies applied for relief of only 9.2 million euros, in 2016 it was even two million less. For this reason, too, the Ministry of Finance submitted a new proposal, which was approved by the government in mid-August 2017, according to which companies can deduct all research costs from taxes from 2018 (Ragáčová, 2017). A similar indirect support in the form of a tax relief is also implemented by the Czech Republic, where, however, it has been shown that its use by companies has been declining significantly since 2016, mainly due to unclear application rules (Hanáček, Bunček & Marek, 2018). Various forms of direct and indirect support for innovation are recorded by the OECD in all European countries, but the differences in the extent of this support are huge, not only in absolute numbers, but even in the share of GDP of individual countries. While countries such as France, Belgium and Austria are at the top of the rankings with support in the range of about 0.3% of GDP, for example, Slovakia is only at its end with support at a level of only about 0.03% of GDP (Asen, 2019). Such a different approach to supporting innovation will have the opposite effect to what the European Community has set out in the Horizon 2020 strategy paper, namely: "Excellence in science, a competitive industry and the solution of societal challenges." Targeted funding will ensure that the best ideas reach the market faster and are used as soon as possible in cities, hospitals, factories, shops and homes" (European Commission, 2014).

The individual states of the European Union are also responding to the challenges of the current technological change and have adopted local strategies and action plans for industry 4.0, focusing on challenges such as R&D funding, polytechnic education, support for start-ups, digitalisation of public administration, building innovation and research centers or mobility. However, these strategies are again formulated and adopted at national level and are therefore

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expected to be highly diverse and supported, and their success depends on the ability of enterprises to start and subsequently maintain their innovation activity.

Focus on innovation as a means of securing a competitive advantage in a global environment characterized by enormous competition (Starecek et al., 2018; Kirchmayer et al., 2016) caused mainly by the impact of globalization policy by the European Union, characterized by the emergence of a single market specified by free movement of goods and people, free space for the provision of services and free movement of capital (Hitka & Zavadska et al., 2015; Caganova et al., 2012) and strong turbulence currently significantly affected by the advent of new robotics and digitization technologies as accompanying phenomena of the Fourth Industrial Revolution, becomes a common part of managerial work (Ližbetinová et al., 2016; Kucharčíková et al., 2014; Hitka & Vetráková et al., 2015).

The European Union therefore aims to promote competitiveness and economic growth by promoting innovation among all Member States. At the same time, the innovative activity of SMEs appears to be key in assessing the level of inactivity and, above all, of economic performance of countries, while the ranking of countries according to this criterion does not change much over a number of years. This may be due, on the one hand, to the different approaches of national policies aimed at increasing a country's innovation and competitiveness and, on the other hand, to the different approach of SMEs in individual countries to individual innovation activities.

Based on these facts, we identified as a research problem the need to examine and on the one hand reveal the reasons for proactive innovative behavior of companies in some countries (Proactive innovation behavior means that the organization is constantly looking for new market opportunities on behalf of their strategy (Moreno et al., 2013) and, on the other hand, the reasons for the low self-initiating innovation performance of companies from countries where support programs and grants are the main and almost exclusive drivers of innovation, ie countries where companies behave reactively (reactive behavior and is linked to the ability of companies to adapt to the environment and current opportunities).

LITERATURE REVIEW

The turbulent and rapidly changing business environment is forcing companies to strive to remain competitive in order to decide whether to enter an existing market or create a new market. Both directions can lead companies to market success, but only if they cultivate appropriate dynamic capabilities (Holsapple & Oh, 2018).

However, the approach to innovation, which determines the form but not the degree of dynamic abilities, represents a relatively serious dilemma. However, the decision to be a leader and to innovate despite a significant dose of risk is proving to be more effective than subsequent reactive adaptation to change, not only in terms of cost, but above all in terms of sustainability of long-term competitiveness.

In their study, Lu and Ramamurthy analyzed the proactive and correct approach of IT leaders over a time frame of 6 years. They performed a long-term analysis of trajectories to change the performance of proactive and reactive IT leaders over time. The results of their study point to the general support for the view that proactive innovation leaders in relatively stable environments lead in innovation and consistently outperform reactive IT leaders in overall performance, allocation efficiency and cost-effectiveness in the management process. However, on the other hand, the results also show partial support for the view that reactive IT leaders, who emphasize the intensive deployment of IT innovations in dynamic environments, will gain a cost advantage in production and operations over time (Lu & Ramamurthy, 2010). On the other hand, the results of an analysis performed by Alonso-Almeida et al. in restaurants in Madrid in 2009 show that both

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proactive and reactive strategies reduce costs, but only proactive strategies develop dynamic capabilities that improve competitive advantage (Alonso-Almeida, Bremser & Llach, 2015).

Pereira-Moliner, et al., (2015) analyzed the environmental proactivity and performance level of 350 hotels in Spain, using a two-step cluster analysis. The results showed two types of environmental behavior (reactive and proactive), with proactive hotels developing significantly better based on competitive advantage in terms of cost differentiation and achieving significantly higher levels of performance (Pereira-Moliner, Font, Molina-Azorin, José Tari, Lopez-Gamero & Pertusa-Ortega, 2015.).

From the above studies, proactive behavior in various areas of development appears to be more advantageous from the point of view of long-term development of competitiveness. According to Chiahuei Wu et al., proactive behavior presents generating and receiving self-inspiring future-oriented activities that are sustained to bring about change towards the environment (Chiahuei, William, Li, Wang). In addition, Marha & Lievens identified in their research that a proactive approach contains more new knowledge than a reactive one (Mahra & Lievens, 2012.)

The aim of the paper is to analyze research data on companies of one region operating in countries with different innovation activity and to identify their proactive or reactive behavior in the context of state or regional grants and incentives.

MATERIALS AND METHODS

Research tool used was an electronic questionnaire distributed directly to representatives of companies in Czech Republic, Austria and Germany during the period of 2015-2016 as a part of research project. The survey sample was divided into two groups, group of Czech companies consisting of 419 respondents and group of 407 respondents from DACH region, represented by Austria and Germany. The sample countries were chosen based on the European Innovation Scoreboard, in order to compare the behavior of highly innovative countries – Austria and Germany, with moderate innovators, performing below average in EU innovation performance, represented by Czech Republic. The statistical sample in both groups consisted of more than 400 hundred respondents, ensuring the statistical reliability of presented results (confidence interval <5). The research questions used were focused on perceived support for innovation from external environment where respondents could select if they feel the support for the level (YES) or they do not feel the support (NO). Further we focused on what changes in the external environment trigger internal changes in organizations. Respondents could have multiple answers, where they answered YES or NO, bases on if the react with internal changes to these external factors:

- The opportunity of new orders, customers, markets;
- Development and prosperity of business partners;
- Supplier related risks and problems (financial, quality);
- New legislative restrictions (obligations) or increased tax and levy burden;
- New European/government grants or support schemes listed;
- The availability of new technologies (technological progress) for production;
- Stricter ecological and environmental restrictions and standards.

In the context to the factors that affect the innovation performance of companies we have included the amount of perceived pressure on innovation from higher structures within companies in the model. The pressure for innovation was tested both as independent and dependent variable in relation to perceived external support for innovation to analyze this relation in sample groups. Respondents could answer on a scale 1-4, where 1 was not existent pressure and 4 was absolute

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pressure. As control variables we have used company size, company maturity level and sector. Each of these variables were evenly distributed in both sample groups of CZ and AT-DE companies. Size of companies was divided into four groups, micro (0-9 employees), small (10-49 employees), medium-sized (50-249 employees) and large (250 and more employees). Within maturity level, respondents could select if the company is new, starting; growing or mature. Sectors were divided into industry sectors and service sectors, while the number of specific sectors in the analysis would be effecting the confidence level, due to specific sectors represented only by a small number of companies. In regards to innovation performance in relation to previous factors, the analysis incorporated also questions on innovation types conducted during past two years, where respondents could choose multiple answers from: New product, service; New/improved marketing; Organizational innovation, changes; Implementation of new ICT; Change/improvement of processes; New technologies for support and automation of processes; Created/entered a new market; Change/improvement of production or its part; New forms of work (telework, flexible work); New forms/types of sales; Change/improvement in logistics; Change of logo/design and presentation of the company; Change in pricing or specifics of products/services; No innovation.

For the analysis of data, Kendall's correlation test was used to identify significant dependencies among variables, which is more suitable for analyzing qualitative and categorical data, presenting more precise results for our analysis than Pearson's correlation coefficient. With further analyzing the strength and effect of relations we have used multiple regression analysis. The significance level tested was at 95%.

RESULTS

External Environment and Support for Innovation

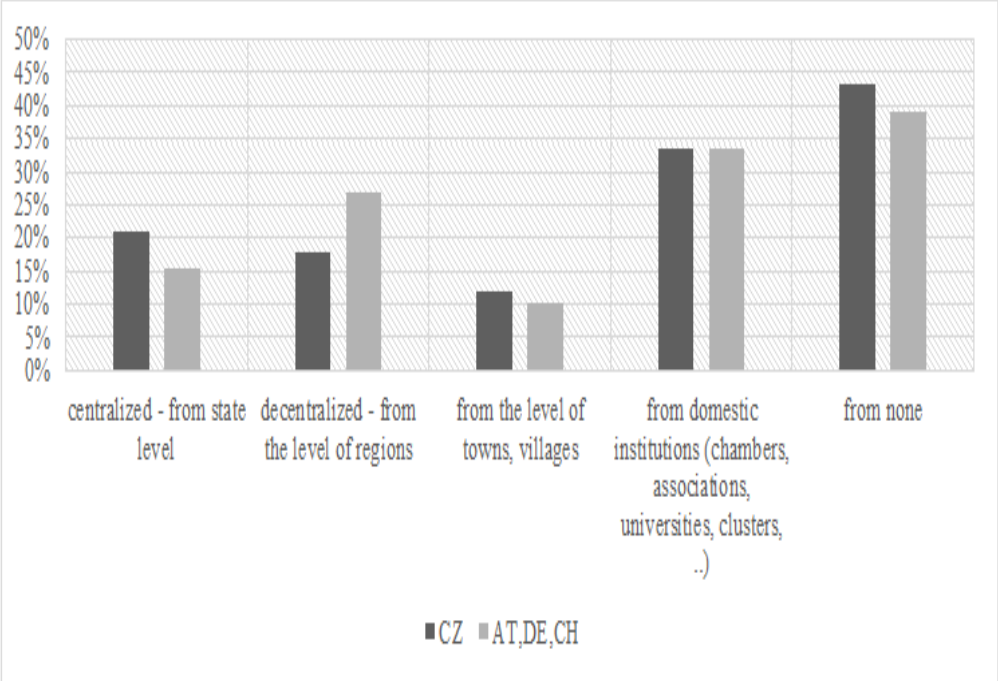

FIGURE 1
PERCEIVED SUPPORT FOR INNOVATION BASED ON COUNTRY OF OPERATION

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The perceived support for innovation from the government and its decentralized regions or towns is perceived to be low in the whole sample of 826 companies. State support is perceived by 21 per cent of Czech companies followed by 15 per cent of Austrian and German companies (13,3 Austrian, 16,6 German). The decentralized support is on the other hand perceived to be higher within Austrian and German companies. Interestingly domestic institutions were selected by 33-34% percent in examined groups.

With further decomposition we look at the impact of selected supports for innovation and the relations with company's reaction to external changes presented in table 1 and 2. For Czech sample of 419 companies the correlation with centralized support for innovation was found to be significant for reaction to new European/government grants, availability of new technologies and stricter ecological restrictions and standards. Decentralized support or regional support was not found to be significant in relation to company reactions on the market. Domestic institutions have on the other hand positive relation with opportunity of new customers, orders and market. However not existent support perceived by companies had negative relations with most factors analyzed.

Table 1
CORRELATION TABLE OF PERCEIVED SUPPORT FOR INNOVATION AND INTERNAL REACTION OF COMPANIES TO EXTERNAL ENVIRONMENT (CZ, N=419)

CZECH REPUBLIC	Centralized - from state level	Decentralized - from the level of regions	From the level of towns, villages	From domestic institutions (chambers, associations, universities, clusters)	From none
The opportunity of new orders, customers, markets	0.04	0.04	0.08	0.11*	-0.11*
Development and prosperity of business partners	0.07	0.04	0.04	0.08	-0.11*
Supplier related risks and problems (financial, quality)	-0.01	0.07	-0.05	0.01	-0.01
New legislative restrictions (obligations) or increased tax and levy burden	-0.02	0.01	-0.09	0.07	0.02
New European/government grants or support schemes listed	0.22**	0.09	0.08	0.05	-0.16**
The availability of new technologies (technological progress) for production	0.1*	0.09	0.1*	0.11*	-0.15**
Stricter ecological and environmental restrictions and standards	0.16**	0	-0.06	0.14*	-0.13*
Significance level *p<0.05, **p<0.01					

In comparison with more innovative countries represented by group of Austrian and German companies the state support for innovations correlated with reaction to development and prosperity of business partners, and similarly to Czech group also with new European/government

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grants. In this sample group the perceived support for innovation from the level of towns and villages did not have any significant relations to the reactions of companies.

Table 2
CORRELATION TABLE OF PERCEIVED SUPPORT FOR INNOVATION AND INTERNAL REACTION OF COMPANIES TO EXTERNAL ENVIRONMENT (AT-DE, N=407)

AT,DE	Centralized - from state level	Decentralized - from the level of regions	From the level of towns, villages	From domestic institutions (chambers, associations, universities, clusters)	From none
The opportunity of new orders, customers, markets	0.05	0.03	-0.05	0.13*	-0.08
Development and prosperity of business partners	0.11*	0,04	-0.01	-0.04	-0.01
Supplier related risks and problems (financial, quality)	0.01	0.1*	-0.01	0.01	0.01
New legislative restrictions (obligations) or increased tax and levy burden	-0.07	-0.02	-0.05	-0.05	0.1*
New European/government grants or support schemes listed (analysis only for AT,DE)	0.21**	0.1*	0.05	0.02	-0.1*
The availability of new technologies (technological progress) for production	0.09	0	0	0.05	-0.05
Stricter ecological and environmental restrictions and standards	-0.01	0.01	0	0	0,04
Significance level *p<0.05, **p<0.01					

Within the whole sample group, the effect of perceived support from state has been significant for all countries surveyed, which we have further examined through regression analysis (Table 3). We have controlled for country, size of the company, maturity and sector (primarily industry and services), where none of those factors was found to be significant. The model was significant only for centralized support in relations to reaction to European/government grants.

Table 3
REGRESSION MODEL OF PERCEIVED SUPPORT FOR INNOVATION AND THE RELATIONS TO REACTION TO EUROPEAN/GOVERNMENT GRANTS AND SUPPORT SCHEMES (N=826)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Country	-0.026	0.015	-0.059	-1.691	0.091
Size	0.006	0.011	0.019	0.526	0.599
Sector	-0.020	0.024	-0.028	-0.804	0.422
Maturity	-0.024	0.020	-0.044	-1.205	0.228
centralized - from state level	0.205	0,038	0.220	5.449	0.000**

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decentralized - from the level of regions	0.062	0.034	0.073	1.832	0.067
from the level of towns, villages	0.064	0.042	0.056	1.522	0.128
from domestic institutions (chambers, associations, universities, clusters)	0.034	0.035	0.045	0.979	0.328
from none	0.023	0.042	0.032	0.554	0.580
Significance level *p<0.05, **p<0.01					

Even though state support for innovation has a positive effect on the reaction to new European/government grants or support schemes, the further analysis has shown that the utilization might differ between analyzed groups. While the correlation between types of innovation and European/government grants is found to be significant for new/improved marketing and new technologies for support and automation of processes in CZ group of companies, for AT,DE companies the correlations is for new forms of work, change of logo/design and also new technologies.

Table 4
CORRELATION ANALYSIS FOR REACTION TO NEW EUROPEAN/GOVERNMENT GRANTS ORSUPPORT SCHEMES AND INNOVATION TYPES CONDUCTED (CZ N=419, AT-DE N=407)

	New European/government grants or support schemes listed	
	CZ	AT,DE
New product, service	0.07	0.07
New/improved marketing	0.12*	0.04
Organizational innovation, changes	0.09	0.04
Implementation of new ICT	-0.03	0
Change/improvement of processes	0.05	0.04
New technologies for support and automation of processes	0.1*	0.1*
Created/entered a new market	0.07	0.08
Change/improvement of production or its part	0.09	0.02
New forms of work (telework, flexible work)	0.06	0.11*
New forms/types of sales	0.04	0.02
Change/improvement in logistics	-0.02	0
Change of logo/design and presentation of the company	0.06	0.14*
Change in pricing or specifics of products/services	0	0.05
No innovation	-0.02	-
Significance level *p<0.05		

Internal Pressure for Innovation and External Support

While on the external level there is significant relation between state support and reaction to European/government grants, the important aspect in the context of actual innovation performance is the internal setting in reaction to innovation activity. Thus we have included pressure from higher structures for innovation activity in testing of the model. With further regression analysis presented in table 5 and 6 we examine the relations between pressure from higher structures and perceived support from external environment for innovation. These relations were tested from both sides, in each sample group, controlling for size, sector and maturity of the business.

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The regression model was found to be significant for Czech Republic, where internal pressure for innovation significantly effects the level of perceived support from external environment (all levels of support). In this case the size of a company was also found to be significant, where with the increase in size of company the amount of perceived support from external environment also increases. Similarly, the model was significant also when testing only the relations with centralized support, where no control variables has been found to be significant. In the sample group of Austrian and German companies the model is not statistically significant, and no impact of internal pressure on innovation towards perceiving external support is found to exist. In the case significance was found only for size, however the tested model was not significant.

Table 5
REGRESSION ANALYSIS PRESSURE FROM HIGHER STRUCTURES WITHIN COMPANIES ONPERCEIVED EXTERNAL SUPPORT

		Unstandardized Coefficients		Standardized Coefficients		
Independent/control variables		**B**	**Std. Error**	**Beta**	**t**	**Sig.**
CZ	Size	0.197	0.089	0.114	2.202	0.028**
	Sector	-0.302	0.193	-0.075	-1.565	0.118
	Maturity	-0.168	0.171	-0.050	-0.986	0.325
	Internal pressure	0.326	0.085	0.189	3.841	0.000**
AT,DE	Size	0.060	0.023	0.138	2.570	0.011**
	Sector	-0.081	0.048	-0.083	-1.674	0.095
	Maturity	-0.050	0.037	-0.069	-1.329	0.185
	Internal pressure	0.003	0.023	0.007	0.135	0.893
Significance level **p<0.01						

Furthermore the model was testing in reverse, analyzing the impact of perceived external support on innovation on the internal pressure for innovation. In this case, again the significance was found for Czech Republic, where also external support effects internal pressure for innovation significantly, while the differences occur within size and maturity. With the increase in size, the internal pressure for innovation increases, while with the higher level of maturity it decreases in the sample of Czech companies. While within sectors there was not found any statistically significant difference, it is interesting to point out that correlation between pressure from higher structures and perceived external support among companies from service sectors was higher, 0.26 compared to 0.18 from industry sectors. For sample group of Austrian and German companies again the model was not found to be significant, thus we cannot conclude there is a relations between internal pressure for innovation and the amount of perceived external support for innovation.

Table 6
REGRESSION ANALYSIS OF PERCEIVED EXTERNAL SUPPORT AND ITS EFFECT ON PRESSURE FROM HIGHER STRUCTURES WITHIN COMPANIES

		Unstandardized Coefficients		Standardized Coefficients		
Independent/control variables		**B**	**Std. Error**	**Beta**	**t**	**Sig.**
CZ	Size	0,241	0,050	0,240	4,844	0,000**
	Sector	0,058	0,110	0,025	0,530	0,596

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	Maturity	-0,259	0,096	-0,132	-2,681	0,008*
	External support	0,105	0,027	0,182	3,841	0,000**
AT,DE	Size	0,262	0,050	0,268	5,205	0,000**
	Sector	0,016	0,107	0,007	0,150	0,881
	Maturity	-0,080	0,082	-0,050	-0,968	0,334
	Internal pressure	0,015	0,109	0,007	0,135	0,893
Significance level *p<0.05, **p<0.01						

A part of the research questions in the questionnaire was also own assessment of respondents as how they perceive themselves to be: effective and efficient, slim and flexible, stable, innovative, cautious or chaotic. In the research analysis we have analyzed group of companies from more innovative countries (AT-DE) as well as group of companies from less innovative country (CZ) focusing on the problem of innovation activity. While the pressure for innovation has been found to have a relations to the amount of perceived support for innovation for Czech republic, we observed in Table 7, that the correlation with pressure for innovation from higher structures correlations only with innovative companies (companies that perceive themselves as innovative), which in our sample occurred more for AT-DE sample, than CZ sample.

Table 7
CORRELATION ANALYSIS OF PRESSURE FROM HIGHER STRUCTURES AND PERCEIVED TYPE OF ORGANIZATION (N=826)

	Effective and efficient	**Slim and flexible**	**Stable**	**Innovative**	**Cautious**	**Chaotic**
Correlation Coefficient	0.059	-0.013	-0.049	0.116**	-0.044	-0.028
Sig. (2-tailed)	0.062	0.691	0.122	0	0.163	0.383
Significance level **p<0.01						

The significance of the internal pressure for innovation in the context of research analysis was confirmed by correlation analysis, where the pressure for innovation from higher structures within companies was found to have significant relation with all innovation types except change in pricing (Table 8). The correlation analysis was controlled for country, size, maturity and sector.

Table 8
CORRELATION ANALYSIS OF PRESSURE FROM HIGHER STRUCTURES ON INNOVATION AND INNOVATION TYPES CONDUCTED (N=826)

Correlation analysis with internal pressure	**r coefficient**	**Sig.**
New product, service	0.141	0.000**
New/improved marketing	0.079	0.023*
Organizational innovation, changes	0.121	0.001**
Implementation of new ICT	0.189	0.000**
Change/improvement of processes	0.191	0.000**
New technologies for support and automation of processes	0.158	0.000**
Created/entered a new market	0.083	0.017*
Change/improvement of production or its part	0.130	0.000**
New forms of work (telework, flexible work)	0.148	0.000**
New forms/types of sales	0.073	0.036*

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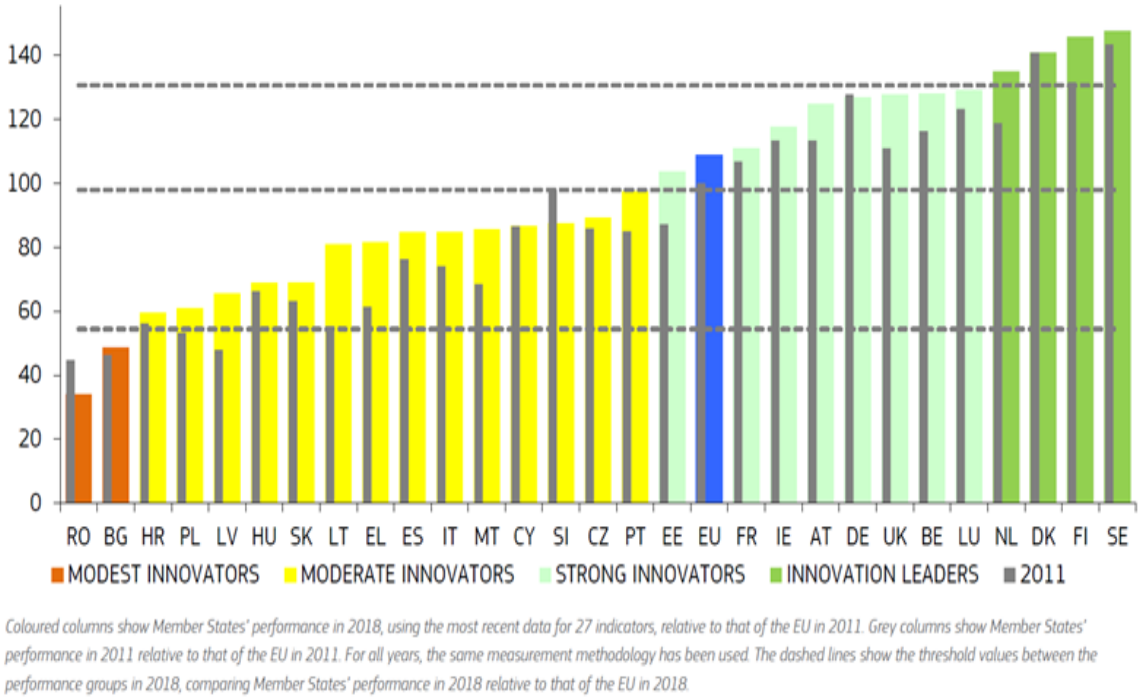
Change/improvement in logistics	0.086	0.014*
Change of logo/design and presentation of the company	0.106	0.002**
Change in pricing or specifics of products/services	0,051	0.142
No innovation	-0.140	0.000**
Control for variables: country, size, maturity and sector Significance level *p<0.05, **p<0.01		

DISCUSSION

Results of statistical analysis presented in the research paper point to the markant difference between developed and innovative countries represented in AT–DE region compared to less innovative Czech Republic within the concept and effect of government and European funding and innovation support, see Figure 2 (DE – rank 23, AT – rank 20, CZ – rank 16) (European Commission, 2019).



Coloured columns show Member States' performance in 2018, using the most recent data for 27 indicators, relative to that of the EU in 2011. Grey columns show Member States' performance in 2011 relative to that of the EU in 2011. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups in 2018, comparing Member States' performance in 2018 relative to that of the EU in 2018.

FIGURE 2
EUROPEAN INNOVATION SCOREBOARD 2018 (EUROPEAN COMMISSION 2019)

While innovation is considered to be the key for sustaining long term growth of economies, which is proven by inclusion of this topic in strategic documents of European countries (napr. European Commission 2019) as well as European Commission, the triggers of innovation activity can not be perceived unanimously. Our findings show that innovative countries have independent, self-regulating and mature innovation systems within organizations (clearly legible and proactive innovation behavior confirmed by our research) while less innovative, in our case Czech Republic is highly dependent on the government support with the regression coefficient 0.5 significant at p<0.01 level (clearly reactive approach of organizations). Thus power for innovation activity lies on the state level and leads even to effecting particular behaviors of companies, which was proven for example by reaction to ecological and environment restrictions in Czech Republic with

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correlation coefficient 0,16 ($p<0.01$). Especially environmental restrictions in the case of Czech Republic was in the form of environmental tax reform which has affected many companies, thus the reaction was to this external change was necessary (Zimmermanová & Menšík, 2013). Interestingly the relation to perceived state support was found only for Czech Republic, not for Austria and Germany. This might be explained be the results of study conducted by Jo, et al., (2015), who found that the amount and level of eco-innovation is higher for more developed countries, it is mainly due to the implementation of eco-innovation with utilization of own, existent capital, while less developed countries are more dependent on external cooperation or funding. This findings are also consistent with data from Eco-innovation observatory conducted yearly by European Commission, presenting that Austria and Germany are well above average of European Union in eco-innovation performance, where Czech Republic performs well below average (European Commission, 2019).

Innovation activity in less developed countries is more volatile while the trigger does not rise within the bounders of organizations or management. The impact of maturity of innovation system appears not only on the state level but as well on the level of domestic institutions support such clusters that have a significant impact on the behavior of companies, with positive correlation of 0,11 ($p<0.01$) with opportunity based actions regarding customers, new orders or new markets. In 2013, most clusters in the EU were concentrated in Germany, where there were as many as 226 clusters out of a total of 1335 in the EU, which represents 16.93% (Spišáková, 2013). Based on the innovation scoreboards, countries of AT–DE region represent highly innovative countries where based on our study the innovation activity and opportunity utilization is based on actual and future needs and trends that are identified within the company and effect the utilization of national and European funding, thus act proactive. On the contrary, our analysis have shown that state support for innovation effects utilization of European grants in Czech Republic (correlation of 0.22, $p<0.01$) which are more technology and industry oriented compared to AT–DE region, the behavior being reactive to the state support or direction.

CONCLUSION

Based on the above facts, which we presented both in the theoretical input and part of the outputs of our research in a group of Czech companies consisting of 419 respondents and a group of 407 respondents from the AT-DE region, represented by Austria and Germany, we found the following findings and conclusions. Proactive organizations lead in the field of innovation and consistently outperform reactive in overall performance, allocation efficiency and cost-effectiveness in the management process, but similar results can be achieved by reactive organizations over a longer period of time if activated as desired. This implies the need for permanent and targeted action on organizations in countries where these reactive organizations occur to a greater extent (the survey showed that one of such countries is the Czech Republic). This is due to the risk that in reactive companies, which are activated on the basis of a suitable stimulus, there is a significant risk that their innovative activity will decline after the end of external pressure. The paper also shows that proactivity in organizations is a priority result of the influence of the management of the organization, which initiates and supports change even without existing pressure from outside (organizations operating in Austria and Germany). The existence of clusters significantly contributes to such proactivity, as the main benefits of such a partnership of companies include higher innovation capacity and flexibility in a competitive market (Marshall, 2008). The paper also showed that the network structure is the largest and strongest generator of innovations that are initiated at the company level and thus supports the proactive behavior of companies.

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