

**Microeconomics**

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**INTERNATIONAL STUDIES ENTERPRISES'
UNDERSTANDING OF INNOVATION ABILITY****Abstract**

The paper presents the subject matter, participants and results of the International Research Project concerning enterprises' understanding of innovation ability. The Project participants consider the interpretation of such concepts as innovation strategy, innovation process, and the role of employees in innovation activity, innovative structures and innovative culture.

Key words:

Innovation, innovativeness, enterprise, innovation strategy, innovation process, innovation culture.

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Introduction

At present innovation provides an important prerequisite for the long-term prospects of business survival in the market. It means the ability to recognize the need for changes and improvements in the company, to determine the appropriate measures and implement them. Considering the grown dynamics of markets, and their expansion to Europe, the ability of enterprises and employees to innovative activity acquires greater significance. Increasing migration of specialists puts forward constant demands on staff and company's development in terms of ensuring an appropriate level of innovativeness.

Within the framework of International INNO-WORK Project «Workforce and Enterprise challenges in a merging Europe», which was initiated by the Erfurt University, Technical University of Ilmenau and consulting firm «Eichenbaum GmbH» (Thuringia, Germany), in 2010 through 2011 there was conducted a survey among small and medium-sized businesses in Germany, Switzerland, Poland and Ukraine to determine what these companies understand with respect to innovation ability and what factors are critical to ensure it. The Project partners were: in Switzerland – Zurich University, in Poland – Chamber of Commerce in the city of Żory (Silesia), and in Ukraine – Lviv Ivan Franko National University. The survey on the Ukrainian side was made by this given author, the Associate Professor at the Department of Business Economics of Lviv Ivan Franko National University..

Subject matter and study participants

In order to conduct the survey the unique form was used for all participants'. The formation of the concept of questionnaires was made through research of professional literature on the subject of innovation ability of enterprises, and the roundtable discussions were held for the Project partners.

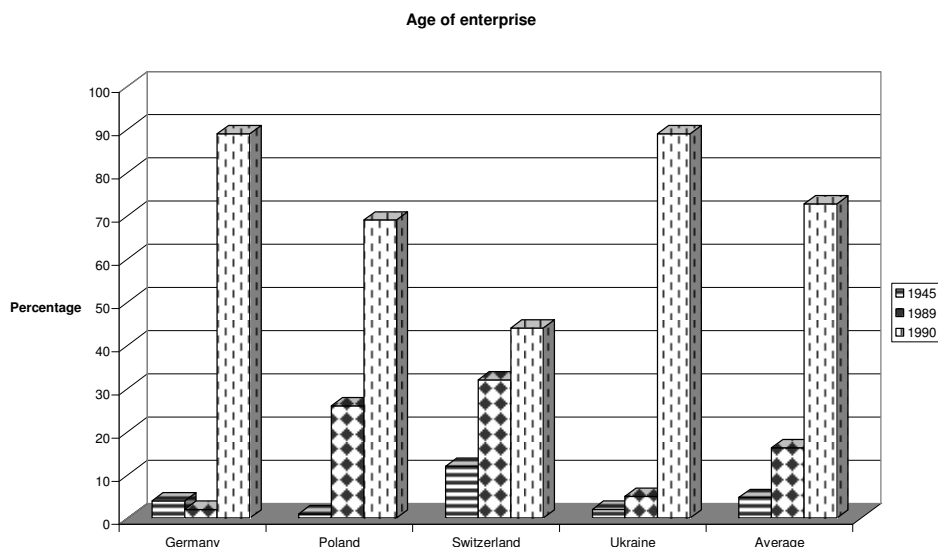
The questionnaire included the question about understanding of the enterprise's innovation ability, and 39 standardized statements concerning strategies, processes, employees, structure, organization and culture of the enterprise, as well as concerning the meaning of innovation. In addition, the questionnaire included questions about general characteristics of the enterprise. For the evaluation of responses 4-point scale was identified: 1 point -completely disagree, 2 – rather disagree, 3-partially agree, 4-strongly agree.

As a result of the surveys there were received and processed 279 questionnaires, including 49 from Germany, 41 from Poland, 113 from Switzerland and 75 from Ukraine. The sample is not representative, and the results are exploratory in nature.

The general characteristics of the enterprises included questions about the year of establishment, number of employees, annual turnover and the sector of activity.

The surveyed companies showed great «scissors» concerning the terms of stay on the market (184 years): the oldest company was founded in 1826, and the youngest – only in 2010. At that, clear differences are observed by countries. While the vast majority of German and Ukrainian companies were founded after 1989, some Swiss companies are very old. These differences can be explained by economic and political changes in the late 80's and early 90's that concerned such countries as Poland, Ukraine and the regions of the former GDR. Therefore, the companies in these countries demonstrate a shorter history (Fig. 1).

Figure 1
Age of researched companies



A number of employees and annual turnover helped to specify the target group. According to the criteria of the European Union small and medium enterprises (SMEs) are divided into three groups: up to 10 employees – the smallest (micro) enterprises, up to 50 employees – small firms; 50–249 employees – medium enterprises. In general, in the studied countries there dominate micro and small enterprises: 30.5% of surveyed firms have less than 10 employees; the share of small enterprises makes 44.8%, while the share of medium-sized enterprises is 24.7%. At that, there are significant differences between the surveyed countries. In Poland, the micro-businesses dominate (43.9% of micro-businesses including 26.8% of small, and 29.3% of medium-sized enterprises). It is followed by Switzerland (40.4% – micro enterprises, 46.5 % – small enterprises, and 13.2% medium-sized enterprises). In Ukraine, unlike in the above countries, mostly small and medium enterprises answered the questionnaire (9.3% of micro-, 50.7% of small-, and 40% of medium-sized enterprises).

For assigning companies to a particular area the «International Standard Classification of Economic Sectors» (ISIC) was used. Most of the companies are busy with the production of goods (20.8%). The second place takes the construction sector (19.2% of respondents). Also, a significant share accounts for the companies providing public and private services (15.8%), as well as trade, maintenance and repair of motor vehicles, and consumer goods (11.7%).

Empirical results

The questionnaire began with the sentence that should be completed: «Innovation ability for our company means». With respect to this phrase 61% of the respondents (169 out of 279 firms) shared their opinion, at that, 18.9% (32) of the surveyed companies associated the innovation ability with design and development, 15.4% (26) – with the introduction of innovations, 10.6% (18) – with the competitiveness and market-orientation, 8.9% (15) – with survival, 6.5% (11) – with the ideas and creativity, 4.7% (8) – with the orientation at future projects, 4.1 % (7) – with increased productivity, improvements, 3.0% (5) – with adaptation, 2.4% (4) – with the increased efficiency and advantages, 1.2% (2) – with the flexibility and changes, 1.8% (3) – with the creation of value, the extension, and the focus on consumers. 5.9% (10) of the respondents demonstrated a holistic perception, 2.4% (4) were critical.

The answers could be identified by two fundamentally different views. Some companies see more internal perspective and associate the innovation ability with the introduction of innovation, development and progress of the company. For other enterprises innovation capability means competitiveness, orientation at the customer and survival in the market, i. e. the prospect that is focused on rather external environment of the enterprise.

In general, these statements clearly demonstrate that the vast majority of businesses are positively disposed to innovations and consider them very important. Eventually, only four companies were critical, pointing out that innovation meant nothing for them, and it causes troubles or even regression.

The first section of the application was dedicated to the innovative strategy. The innovative strategy includes a series of decisions, actions and behaviors for meeting the innovation goals. This means that the changes and innovation ability can be actively formulated, i. e. the company should take systematic efforts to create new developments and to enhance its own innovativeness. This relationship was presented in the questionnaire through some statements, hinting possible behaviors of SMEs. For example: «Innovation is not a special case, but a continuous constituent of the enterprise's strategy,» «The processes must continually and systematically be checked for enhancement», «Employees are provided support at the development / presentation of innovations, including that by stimulating», «The management implements changes», «Enterprise processes are designed in such a way as not to block innovation».

The greatest support on average data for the total sampling was the statement that «the processes must continually and systematically be checked for enhancement» (3.6), and «Innovation is not a special case, but a continuous constituent of the enterprise's strategy» (3.57). The least approval was given to the statement that «employees are provided support at the development / presentation of innovations, including that by stimulating» (3.13). Nevertheless, the level of approval in general is high, despite the apparent shift of focus in the plane of enterprise's processes, compared with that of employees.

There is a striking variation observed in the responses of individual countries (Figure 2). In particular, the statements regarding «The management implements changes» and «The processes must continually and systematically be checked for enhancement» make quite a differentiated picture. Besides, the Ukrainian companies with an average value of 3.25 approve the reward of innovative activity of employees more than the German companies (3.07), Polish (3.06) and Swiss companies (2.99).

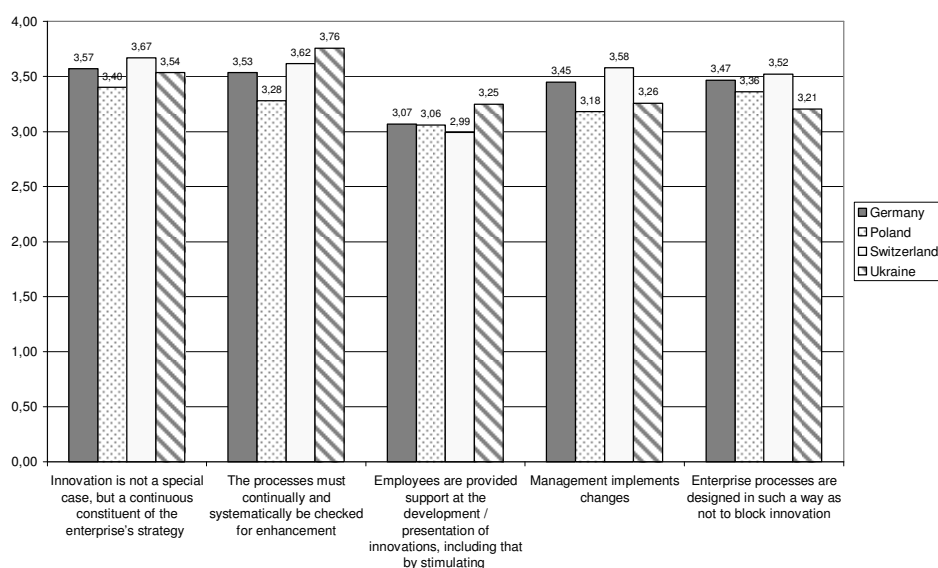
In general, we can conclude that the surveyed firms consider innovation to be of strategic importance.

The second section of statements in the questionnaire was related to the innovation process. At that, the attention was focused on the description of the process that is essential for innovation in the enterprise, including : «systematically and with clear criteria develop ideas», «systematically and with clear criteria analyze ideas», «systematically and with clear criteria evaluate ideas», «systematically and with clear criteria implement ideas», «to take into consideration market trends and technologies», «to obtain ideas as a result of inducement coming from customers, suppliers, partners or experts», Information sharing between employees of different departments (e. g, the exchange between designing,

manufacturing and sales).» That is, the innovation process is presented as a consistent flow of stages. At that, the idea generation is the first step while implementation is the final. Ideally, this process is institutionalized in the company.

Fig. 2

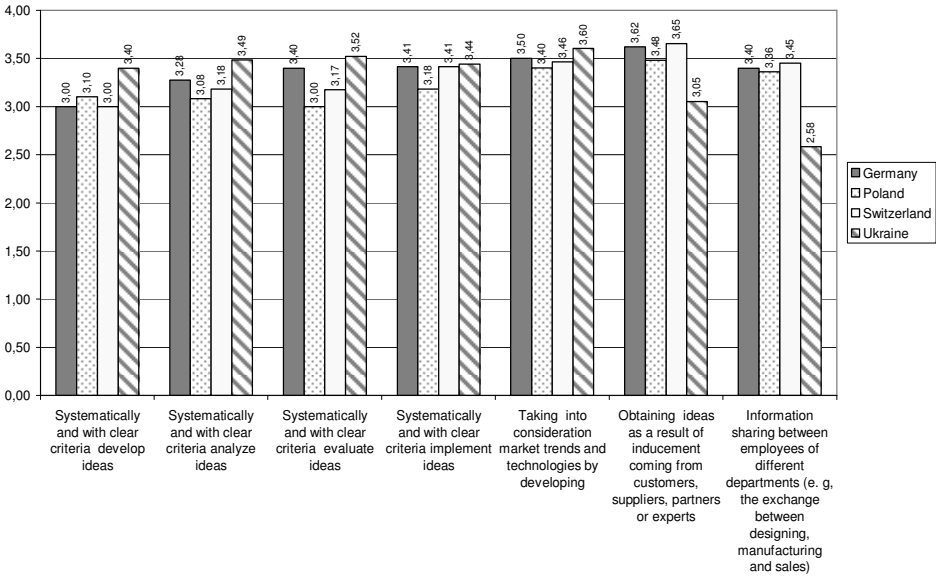
Strategic innovation panel in the averages by countries



It should be noted that the respondents attach great importance to the innovation process. When analyzing responses by the average figures for general sampling the striking fact is that for enterprises' evaluation of the systematic development of ideas is significantly lower (3.12) than the estimates regarding the systematic analysis (3.29), evaluation (3.32) and the implementation of ideas (3.4). This could be explained by the fact that the emergence of ideas takes place mainly without control, spontaneously, in relation with the work, or in case of arising problems, and the developing and implementing of these ideas requires some planning and taxonomy. The respondents assign a special place to impulses of such external actors as customers, suppliers or partners, as well as accounting for market and technological trends (43.8% of micro-enterprises, 26.8 % of small enterprises, and 29.3% of medium-sized enterprises)

If we consider this sector of study by countries (Figure 3), the fact is striking that relatively small number of responses concerning the exchange of information between employees from different departments were from Ukrainian enterprises (2.58). While the enterprises of other countries showed relatively high scores (Poland – 3.36; Switzerland – 3.45, Germany – 3.4), the Ukrainian companies tend to reject that condition.

Fig. 3
The plane of innovative processes in average values by countries



The third section of statements covered the role of staff in providing innovativeness in the companies. The respondents had to present their vision by a 4-point scale on the following statements: «Employees can act independently», «Employees can contribute their practice and competence», «Employees can contribute their ideas», «Mistakes are treated as chances», «Employees have required knowledge and skills to implement innovation», «Every employee is expected to encourage improvements», «There is a system of incentives to encourage innovative behavior of employees.»

In this section of the questionnaire such statements as «Employees can contribute their practice and competence», and «Employees can contribute their ideas» were estimated by the average figures for general sampling the top (3.6 and 3.59). As a counter to that, the statements that «Employees can act independently» and «There is a system of incentives to encourage innovative behavior of employees» received minimal approval (2.99 and 2.98). The aspect of learning and making proposals by the employees is likely to play more important role in innovation (3.33) than material incentives. That is, each individual is expected to actively behave, but the system of incentives is not considered to be needed for that purpose. In general, the result corresponds with the figures followed from the first section of the research, where structural aspects of innovativeness prevail over the human.

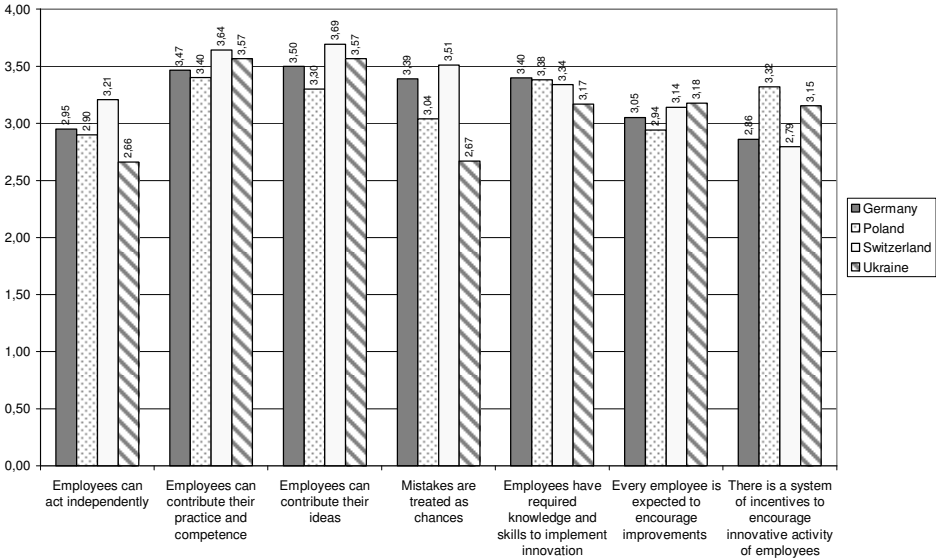
If we consider this series of responses by countries (Figure 4), we can see rather positive estimations. The highest positive estimation results (calculated on averages by countries) account for the statement of «Employees can contribute their ideas» (Germany – 3.5; Poland – 3.3, Switzerland – 3.69, Ukraine – 3.57) and «Employees can contribute their practice and competence» (Germany – 3.47; Poland – 3.4; Switzerland – 3.64; Ukraine – 3.57). Respectively the deviations are observed for the evaluation of the statements of «There is a system of incentives to encourage innovative behavior of employees» and «Mistakes are treated as chances» depending on the specific understanding of innovation ability of the enterprises in the surveyed countries. In particular, the results should be noted concerning the idea that «Mistakes are treated as chances.» When German (mean value is 3.34) and Swiss respondents (3.5) highly estimated and approved this statement, in Poland (3.04) and above all, in Ukraine (2.71), it was supported rather poorly. Further interpretation of this behavior required an extra analysis of socio-cultural differences between the countries, which had not been made within the framework of study.

The institutional framework conditions are related to registration of enterprise processes that promote innovation. Hints for possible ways of organizing innovation activity in SMEs were given in the fourth section of the questionnaire including the following statements: «Employees of all divisions / departments and hierarchical planes search for new ideas and innovation potential,» «Employees are provided with space (general resources) for innovation», «Existing contact individuals as well as opportunities for regular communication / discussion», «The R & D Department either the one that is responsible for research and development is available», «Training and qualification upgrading is provided».

In general, the statements concerning this section of the questionnaire against the other ones got less approval. So, it can be concluded that the respondents did not attach great importance to the organizational aspect of innovation capacity. Stronger support by the average data for the total sampling was given to the statements that «training and qualification upgrading is provided» (3.39). Also, the statement that «Contact individuals are available as well as op-

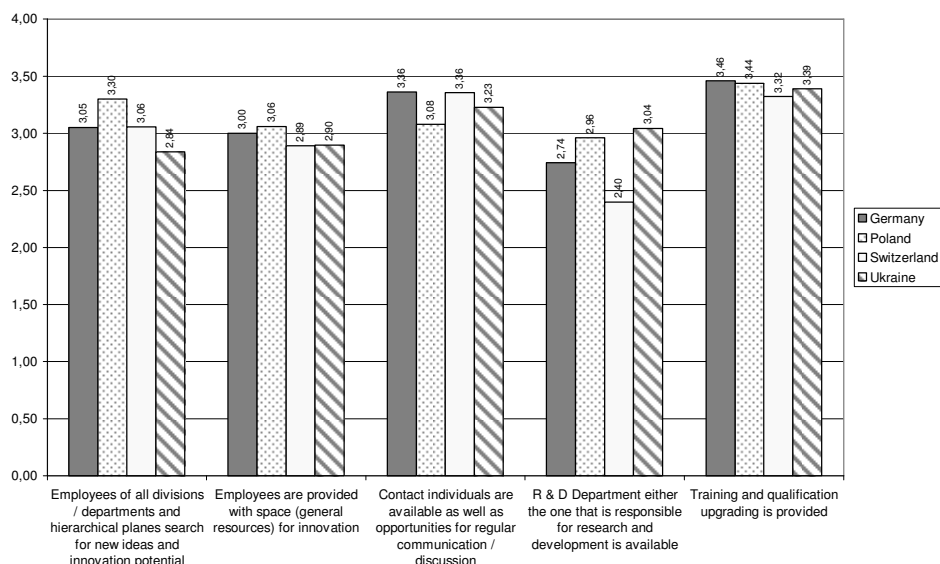
portunities for regular communication / discussion «, was supported by the majority of the respondents (3.3). Only Polish companies showed lower estimates respectively this statement. In this case, we can assume the relationship with the value of the enterprise, which in Poland compared to other countries, was the lowest: probably due to the limited staff is not always possible to find a contact person to discuss innovative intentions.

Figure 4
Plane of personnel in averages by countries



While compared by countries the positive estimation of the statement «Training and qualification upgrading is provided. «was similar. So, the average for German respondents was 3.46, for the Polish – 3.44, for the Swiss – 3.32 and for the Ukrainian respondents – 3.38. Significant variations were in responses regarding the statements «The R & D Department either the one that is responsible for research and development is available», «Employees of all divisions / departments and hierarchical planes search for new ideas and innovation potential,» (Figure 5).

Figure 5
Organizational plane of innovativeness in mean values by countries



The deviation by countries is interesting concerning the statement that there is «R & D Department either the one that is responsible for research and development available «A small number of responses about the availability of research and development department or the one that is responsible for that activity was really striking . Deeper analysis of this thesis presented in the questionnaire showed that 59.6% of surveyed Swiss companies did not agree on the necessity to have a special R&D department or the one that is responsible for the development. Polish enterprises demonstrated quite opposite approach: 75.5% of respondents rather agreed or completely agreed. Similar behavior can be observed in the responses among the Ukrainian respondents: 70.7% rather agreed or fully agreed with this statement. The variance in responses of Ukrainian respondents can be attributed to companies belonging to a wide range of industries and their value. For a deeper study the sampling is insufficient. In summary we can say that 56.5% of all respondents rather agree or strongly agree with the presence of R & D department or the one who is responsible for innovation in the enterprise, although the approval is lower than in other areas. This corresponds with the research results of the Project partners from the Netherlands, where the presence of such a unit is generally considered as an obstacle to innovation, as in this case the individual employee is relieved of the responsibility for innovation.

Company's culture is an important factor of influencing the innovation. Entrepreneurial culture that fosters creativity and innovation can be formed through certain organizational rules and structures. This relationship is represented in the questionnaire section under the title of «Innovation culture» through the following statements: «Interdisciplinary groups / teams», «Joint business rituals / traditions», «Confidence and respect» and «Transparency in using knowledge and information.»

For the majority of respondents the fact is important that «the employees treat each other with confidence and respect.» This statement in the total sample received an average score of 3.56. Also it is very important for the respondents that «at all hierarchical dimensions there is transparency in using knowledge and information» (3.42). Compared to these statements the one regarding the possibility of «creating interdisciplinary groups / teams» received comparatively lower scores (2.92). It can be interpreted in such a way that the favorable business culture to innovation is understood rather as structures than interpersonal relationships. Although, it is just the interpersonal aspects, that produce a significant impact on motivation and innovative behavior of employees.

When comparing the responses by countries there the differences are obviously observed. This is especially true to the statements that «at all hierarchical dimensions there is transparency in using knowledge and information», and the possibility of fostering «common business rituals / traditions in the company» (Fig. 6).

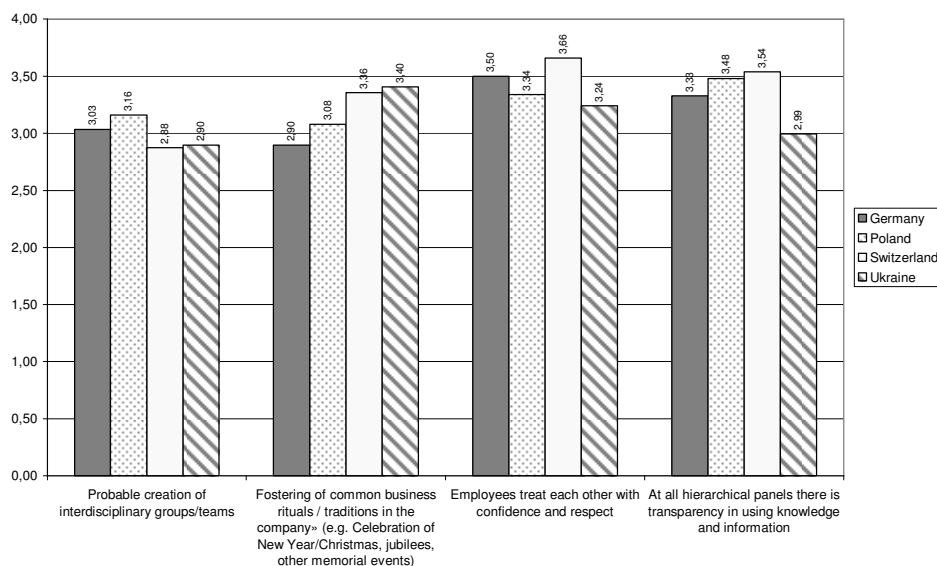
When 100% of Polish respondents rather agree or fully agree with the fact that at all hierarchical dimensions transparency should prevail in the use of knowledge and information, 3.6% of the Swiss respondents 8.3% of German, and 20.5% of Ukrainian respondents rejected it. Meaningful conclusions can not be made because of the small sampling.

The second place among the least supported statements took the one saying that fostering of common rituals is a manifestation of business innovation culture. The Ukrainian (87.8%) and Swiss companies (87.6%), greatly supported that idea against Polish (73.2%) and German (73.5%) ones. The deeper analysis is not possible because of the small sampling.

The formation of multidisciplinary teams / groups is a factor of influence on the company's innovativeness ability. With this relationship 64% of Ukrainian, 69% of Swiss, 83% of Polish and 72% of German respondents agree. This response as compared with other statements got the lowest estimation grade. A possible explanation could be that the existing structure of businesses and professions do not require interdisciplinary teams.

Fig. 6

Panel of innovation culture in the mean values by countries



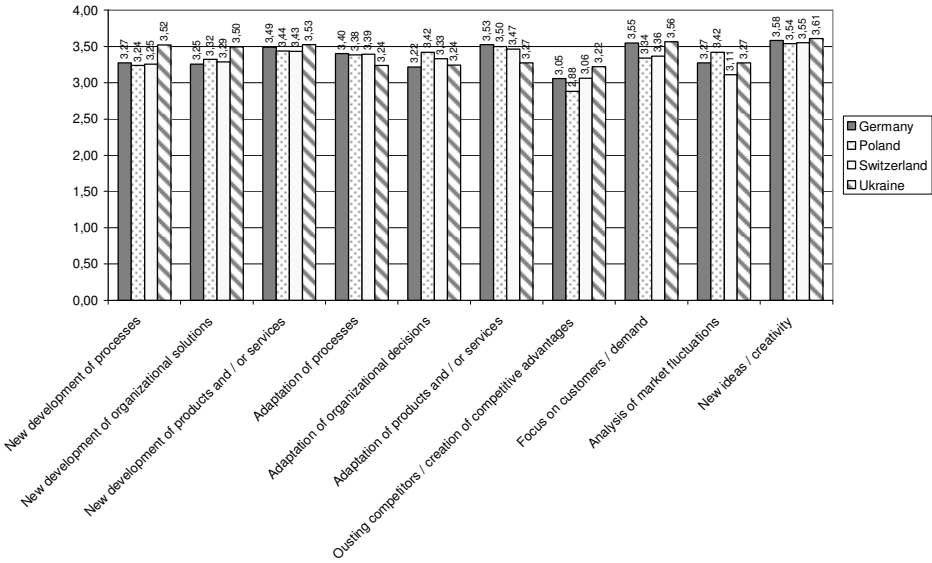
At the end of the questionnaire, in addition to the first open question there were presented the statements on understanding of innovation. At that, this task was to find out whether the respondents perceive innovation in the narrow sense – as innovative products – and thus focus on the market and sales. Or in a broader perspective they view it as a process. When the narrow sense of innovation is more focused on the external environment of the enterprise, and thus tries to explain the situation with the consumers and the demand, the understanding of innovation in a broader sense is rather holistic and focused on the company and its ability to adapt. This section of the questionnaire offered the following statements regarding the interpretation of innovation in enterprises: «New development of processes», «New development of organizational solutions», «New development of products and / or services,» «Adaptation of processes,» «Adaptation of organizational decisions» «Adaptation of products and / or services», «Ousting competitors / creation of competitive advantages», «Focus on customers / demand», «Analysis of market fluctuations,» «New ideas / creativity».

The strongest approval in the average values for the entire sampling was given to the statement that the meaning of innovation is the creation of new ideas and creativity (3.59). The companies rarely noted that they oust competitors or

provide competitive advantages due to innovation (3.12). In general, the results showed that companies almost equally estimate all aspects of innovations.

If we consider the statement on understanding of innovation by countries, it is striking that Ukrainian respondents put more emphasis on the development of new processes or products, rather than to adaptation (Fig. 7).

Figure 7
The innovation essence understanding by enterprises in averages by countries



The statement that innovations create competitive advantages was also differently assessed in different countries. While 61% of Polish respondents rated this statement as «rather agree» or «strongly agree», and thus showed the lowest positive evaluation, the approval of Ukrainian respondents is significantly higher. Here 89% of respondents either rather agree or strongly agree

Conclusions

The study showed that the surveyed small and medium enterprises from Germany, Poland, Ukraine and Switzerland have a systematic approach to innovation understanding, that is, not only as the development of innovative products and processes, but also as measures for the development of the organization and its adaptation to dynamic environmental conditions. A more detailed examination of a systematic approach using the technique of factor analysis will be the subject of subsequent publications.

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