ROLE OF INNOVATIVENESS IN THE DEVELOPMENT OF THE METAL & MACHINE SME SECTOR IN POLAND (BASED ON THE AUTHORS’ OWN RESEARCH).

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Abstract

Innovativeness plays an essential role in the development of the Polish Metal & Machine sector. As the research shows, most enterprises (in this sector) are small and medium enterprises (SME). In 2010 there were above 8500 enterprises in the SME sector whose activity was concentrated on Metal & Machinery production. The development of this SME sector is impossible without their investment in technology and the progress of innovation. This is a challenge for all enterprises in this sector. Polish entrepreneurs have to invest substantial financial capital to catch up with European competitors in the same fields. The essential question is: how do they estimate their own investments in the innovative development and has it helped them to achieve sustainable progress?

The article presents the authors’ own research which included conclusions concerning the innovation process in the Metal & Machine SME sector and its influence on the development of this sector. There are estimated such elements as: reasons for innovation implementations in the machine SME sector, advantages for enterprises (competitiveness and turnover), plans and their development in the future, etc. The research took place in 2010/2011. The direct interview was the main source of information. Approx. 360 enterprises (involved in the production activity) located in 6 regions in Poland were engaged in this research. The conclusion of this research is as follows: the innovativeness (technological) progress in the Metal & Machine SME sector is necessary to build the enterprise potential in the market but not all entrepreneurs are able to indicate the direct advantages which have been the consequence of innovation modernisation of their own firms.

Keywords: innovation progress, SME, metal & machine sector,
a new marketing method or a new organisational method in business practices, workplace organisation and external relations” [8]. The European Commission, in turn, sees innovation in rather general terms as “the successful production, assimilation and exploitation of novelty in the economic and social spheres” [4]. The first of the above-quoted definitions is the example of the so called narrow approach to innovation which states that not every novelty can be treated as innovation. The narrow approach stresses the importance of technological solutions that influence production processes and production growth and to a large extent it omits social changes [15]. The “technological” approach to innovation is presented by many foreign academics, such as C. Freeman and I. Soete who define innovation as “all efforts to commercialise new technologies” [4]. In this case, commercialisation means “marketisation” or the use of these technologies for innovative needs of enterprises connected with the introduction of, for example, new products or services to the market. M. Dodgson, D. Gann and A. Salter add that it is not enough to enter the market but it is also necessary to achieve success (resulting from the introduced novelties). According to these authors, innovation encompasses scientific, technological, organisational, financial and business solutions that enable the introduction of new (or improved) products or services [3]. E. Jędrych is one of the Polish authors that look at innovation from the perspective of its market significance (i.e. measurable effects in the form of competitive advantage, which is the key issue for the SME sector). She claims that enterprises (economic organisations) use innovations for their own benefit in order to ensure their own market continuity [7]. To sum up, for the purpose of this article, innovation is defined according to the narrow approach, i.e. it encompasses technological changes that lead to the introduction of new products and services to the market. These changes may result in the improvement of their competitiveness not only in respect to the domestic market but also to the European and global market.

The aim of this article is the verification of the hypothesis that innovativeness plays an important role in the development of SMEs in Poland in the Metal and Machine sector. It was carried out based on the authors’ own research in which entrepreneurs themselves assessed the direct (or indirect) effects of the implemented innovations.

2. SMALL AND MEDIUM ENTERPRISES IN THE METAL AND MACHINE SECTOR IN POLAND

In the last decade the Metal and Machine sector (without the steel industry) in Poland developed quite dynamically [10] despite considerable turbulences (in this sector) that mostly resulted from the situation in the global markets and the escalating crisis in the recent years. Despite the fact that metal as well as machine-building industry is based in the most part on large entities (they generate approx. 40% of profits in the metal industry and approx. 60% of the income of the machinery sector) [9] i.e. entities that employ more than 250 people, there are numerous small and medium enterprises operating in the whole sector (in Poland). According to the latest data published by the Central Statistical Office of Poland, there was a significant increase (of 84 enterprises) in the number of entities operating in the metal group and the decrease of 36 enterprises in machinery and equipment manufacturing between the year 2010 and 2011 [14]. The largest group in this sector is made up of micro entities. In relative terms, they constitute approx. 74% of enterprises in the metal industry and approx. 80% in the machinery industry. These proportions in the group of small enterprises are respectively 16% and 13%. The penultimate group is made up of medium enterprises, their share in the total number of enterprises in the metal industry is 6% and 5% in the machinery industry. Large entities form the least numerous group as only 3% operate in the metal industry and 1% in the machinery industry. It should be noted that there exists a vast disparity when these shares are compared with the rate for the whole SME sector in Poland as there are approx. 96% of micro enterprises (74-80% in the case of the studied sector), approx. 3.2% (13-16%) of small enterprises, 0.8% (5-6%) of medium enterprises and approx. 0.8% of large enterprises (in this case 1-3%) (Fig. 1 and 2). In general, it should be concluded that the Metal and Machine sector in Poland displays the tendency to have a larger proportion of entities that employ more than 10 people in the total number of registered enterprises (compared to the data for the whole SME sector for Poland), which results to a large extent from the specificities of this sector.
In geographical terms, the largest number of metal enterprises operate in the following voivodeships: Masovian (17.9%), Silesian (15.8%) and Greater Poland (10.5%). The regions of Central and Northern Poland: Łódź (6.6%), Kuyavian-Pomeranian (6%), Pomeranian (7.4%) take the average position in the ranking while the lowest ranked are the regions of Eastern and Northern Poland: Warmian-Masurian (2.2%), Podlaskie (1.6%), Lublin (2.4%) and Subcarpathian (3%). An interesting study was conducted in 2010 which indicated that the least optimistic about the improvement of the situation in their own sector (metal and machine) were the entrepreneurs in Łódź Voivodeship and the most optimistic were the entrepreneurs from the regions of Eastern Poland (mostly Podlaskie Voivodeship). In the sectoral breakdown, construction companies viewed the future in the most positive light, while service companies viewed the future in the most negative light [9].

3. ROLE OF INNOVATIVENESS IN THE METAL AND MACHINE SME SECTOR IN THE LIGHT OF THE AUTHORS’ OWN RESEARCH

The research was conducted in the years 2009 – 2011 with the use of survey method in the form of a direct interview. It encompassed several cycles and various groups of enterprises according to the Polish Classification of Activities into six economic sectors (production, services, commerce, transport and construction). Random and purposive sampling was used as the selected SME entities were verified in terms of meeting the established criteria. Over 700 entities throughout Poland were studied. The study aimed to assess the innovative development and to establish determinants (internal and external) that influence the innovative development of SMEs in Poland. The conducted research allowed to identify approx. 400 of innovative manufacturing enterprises of which approx. 270 operating in the metal and machine sector (involved in manufacturing of metal products). Among the sample, 87 were micro enterprises (32%), 89 small enterprises (32%) and 98 medium enterprises (36%). The study was conducted in 6 voivodeships (regions), diversified in terms of their innovation potential and industrial development. Among the studied regions, the high (moderate) potential of the M&M industry was found in the following voivodeships: Łódź, Pomeranian, Masovian, Silesian and Greater Poland. The small potential was found in Warmian-Masurian Voivodeship (see above). The assessment of the role of innovation in the development of SMEs in Poland was a staged process. The first analysed element was the issue of advantages resulting from the new solutions implemented in the enterprise. Most of the enterprises from the studied SME sector positively assessed the effects of the changes (Fig.3) [2].
The data presented above indicate that approx. 85% of the SMEs that operate in the M&M sector see clear advantages that result from the introduced innovations. Almost 15% of them do not see such benefits. The most often mentioned innovation effects in the studied sector are as follow: higher quality products (particularly important from the perspective of medium enterprises – above 70%), improved competitiveness (indicated mostly by small and medium enterprises – above 50%) and increased profits (above 60% of the respondents) (Fig. 4.). The sequence (order) of these effects is logical. Most of the indications have the market (marketing) character, which in consequence results in increased profits. The smallest number of advantages is identified with a larger number of customers (just above 10% of the respondents). Drawing conclusions from these data, it should be said that the results are to some extent characteristic of the Polish market. Customers are very cautious about buying novelties since they do not fully realise their usefulness and are not sure if they really need these innovative solutions hence the increase in the number of “new” customers is relatively small. “Old” customers are more interested in purchasing novelties. Additionally, what should be noted is the economic standing of the M&M sector, which suffered recession in the last decade, the fact that was not conducive to enlarging the group of new customers. The responses concerning the effects on the increase of turnover and the improvement of competitiveness in the domestic and international markets are particularly interesting (Fig. 5 and Fig.6).

The increased turnover that resulted from the implemented innovations occurred to the greatest extent in the intervals: 6-10% and 11-20% and affected particularly small (approx.18%) and medium enterprises (approx. 16-18%). Small enterprises have a slightly smaller share in these intervals (approx. 8-13%). Their shares in the two remaining intervals (21-30% and >30%) are relatively the largest (5-8%), which indicates that these two groups of enterprises (small and medium) in the M&M sector develop more dynamically as a result of the implemented innovations and that approx. 5 -8% of the smallest entities can make use of the innovation
advantage to increase their market share (due to their flexibility). In general, it should be concluded that innovativeness affects the increase in turnover to a moderate degree, which can be the result of a slight increase in the number of customers and the global recession. As it was stressed above, another effect of innovation is the improved market competitiveness and approx. 50-60% of the M&M enterprises indicated that innovation impacts on the improvement of their competitiveness. The question concerning the level of interaction between these two factors should be answered though. In the opinion of the entrepreneurs from the studied sector, this correlation is strong (approx. 31% of the respondents) (or even very strong – approx. 13% of the respondents) since the largest number of responses concerned ”high” or ”very high” rate of competitiveness increase that resulted from the implemented innovations. Only 3-5% of the enterprises indicated that the role of innovation in the process of creating competitiveness was ”small” or ”insignificant” (Fig. 6). Small entities are the largest group for which novelties constituted an important factor in the fight for customers (approx. 50% of the respondents altogether).

The part of the study which concerns the nearest future (3 years) points to an important role of innovation for the studied sector. The vast majority of enterprises intend to make the effort associated with their innovative development (above 90% of respondents). It is the consequence of a deep conviction (resulting, among others, from the current experience) about the increasing role of innovation in creating their own production potential and company resources (Fig. 7 and 8).

Such a high number of responses concerning the role of innovation in the next 3 years result also from the change of attitude and the increase in the awareness of Polish entrepreneurs as to the role of innovation in the future (medium entities assess this role in the most positive way – approx. 99%). Until recently the whole SME sector (including the M&M industry) had a low opinion on the role of innovation, quoting price as the most important factor in the process of improving competitiveness. Innovations were usually mentioned at the 4 – 5th position [13]. It results from the specificity of the Polish market that consists in customers searching for cheaper products, which usually means products that require low innovation capacity. The lack of demand on the part of customers was not stimulating for producers. The data presented above indicate a shift in the attitude of producers, despite the unfavourable exogenous conditions (economic recession), which can be the result of the strategic (long-term) approach. One can only hope that this development trend can be sustained.

4. CONCLUSION
The research presented above allowed to positively verify the hypothesis that was put forward and stated that innovativeness has a great impact on the development of SMEs in the metal and machine sector. Due to the text limitations, many of the conclusions resulting from the research conducted in this sector could not be
included in the article. However, the presented data leads to the following reflections. Firstly, enterprises see clear advantages from the implemented innovations. Secondly, they point to the (significantly) improved competitiveness and the (moderately) increased turnover. Thirdly, recipients of innovative products are more often "old" customers than "new" ones, which results from their high market caution. Fourthly, the attitude of producers toward the role of innovation in raising their competitiveness is changing. Most of the studied entities declare further innovative development through the implementation of new technological solutions in the next 3 years. As it was indicated earlier, one should hope that exogenous factors would not limit too much their resolutions concerning the creation of the innovation capacity, which is also very important for the studied M&M sector.

REFERENCES
[2] Authors’ own research carried out in the framework of the research project "Polityka wspierania innowacyjności sektora małych i średnich przedsiębiorstw w Polsce - analiza uwarunkowań i ocena realizacji", 2008-2011, commissioned by the State Committee for Scientific Research.