

DESIGN IMPACT ON THE ECONOMIC OUTPUT OF ENTERPRISES AND THEIR COMPETITIVE POSITION

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In order to draw manufacturers' attention to design potential and a possibility to use it to improve product's innovativeness and competitiveness, in the past few years the Institute of Industrial Design has been conducting the research on the effectiveness of design and its contribution to the commercial success of a product, as well as strengthening the company's position. Design investments pay off, the size of means, however, which manufacturers are willing to allocate to design activities, depends on a number of factors, including design awareness of business circles, financial situation of the company and the level of investments in R&D. The lack of government instruments aimed at stimulating design development and encouraging manufacturers to make use of design services is a critical barrier to design expansion in Poland.

1. Design in company's strategy

After Poland's accession to the European Union in 2004 Polish industry faced the must to adjust our products to international standards in order to compete effectively on the Homogeneous Market. Competitive position and commercial success of a product are more and more dependant on company's ability to introduce innovations, both with respect to its products and to the production and marketing processes. Industrial design, with its potential to improve the competitiveness of products, to strengthen company's image and, at the same time, to maintain the national identity under the conditions of extending economic globalization, plays here a significant role. Design is a factor of innovation at least as important as a new technology; due to design the company and its product can succeed on market and gain a competitive edge. This is why design is perceived worldwide as a force able to support economic development since it improves product's quality and competitiveness.

This is understood particularly by entrepreneurs in Western Europe, where high-quality design often comes to the fore of company's marketing strategy. In 2001 international consulting company PricewaterhouseCoopers inquired managers if design had been recently the strategic target of their firms' activities. The firms in the sample were ordered according to their financial performance. In the response 5 per cent of the best companies recognized design as the most important strategic tool. The similar answer was given by 3/4 of another 25 per cent of the enterprises with the best financial performance¹.

Research performed in 2002 by the British Design Council indicates that 80 per cent of companies believe that design adds to their competitive strength, and 83 per cent that it contributes to higher market sharing and thus it is an element of their management system.

Similar findings were presented by American researchers who for five years were examining closely the extent of the use of design in 51 companies from 4 industries: furniture, electronics (computers), household appliances and automobiles. They confirmed the fact that the use of original professional design enhances product's innovativeness and contributes to better company's performance, which results in the rise of sales and higher market share².

¹ Stamm B.: What's Design Got to Do with it? *Design Management Review*, Winter 2004, vol. 15, nr 1, pp. 10-19

² Hertenstain J.H., Platt M.B., Brown S.R.: Value Design: Enhancing Corporate Performance Through Design Effectiveness, *Design Management Journal*, Summer 2001, vol. 12, nr 3, pp. 10-19

Leaders of American and European business increase their design allocations by 8-10 per cent every year. Impact of design on company's activities is not unconditional, however, but depends, among others, on the industry development and accepted design strategy³.

Research work conducted in the years 2001-2002 in Germany on a sample of 100 enterprises proved that the main reason why manufacturers employ designers is their wish to launch a new innovative product on market (80.8 per cent of the responses) and to build company's identity by means of a product visualization (54.9 per cent of the respondents). Producers of sanitary equipment stated that thanks to design they increased their turnover by 20-25 per cent⁴.

- In Poland research work concerning the correlation between design and commercial success has been undertaken by the Institute of Industrial Design, the only institution in Poland obliged by its statutes to stimulate – by means of design – the innovativeness and competitiveness of Polish products. The aim of the investigation, carried out in the years 2001-2003, was to find out how enterprises enhance the competitive strength of their products due to design investments and how design influences on financial performance and expansion strategy⁵.

An analysis was performed basing on the results of a mail survey and face-to-face interviews which encompassed 301 commercial and industrial enterprises, mainly from the SME sector (with less than 250 employees), in the following industries: textile, furniture, household appliances, lighting, glass and ceramics. Exploratory findings (concerning 161 companies) on the influence of design on the competitive strategy of enterprises were published in *Design Management Review*⁶.

The subject was continued in 2004 and then the Institute performed the analysis of the impact of industrial design on product's innovativeness and that of the effectiveness of design projects in the following aspects:

- influence of design on the creation of innovative products,
- strategy of the development of new products with original up-to-date design,
- effects, including those economic, of the implementation of innovatory high-quality design products⁷.

Survey with the use of a questionnaire embraced 114 industrial enterprises, prizewinners in prestigious design competitions held in Poland and abroad in the few past years. It was assumed that the awarded products contained design innovations and the manufacturers expected they would improve the quality and functional characteristics of the product, as well as catch customers' attention, and, as a result, increase sales and strengthen the brand.

The analysis of the role of design in the development of innovative products included enterprises from the following industries: textile (38 companies), furniture (36), household appliances (20)

³ Gemser G.: How Integrating Industrial Design in the Product Development Process Impacts on Company Performance, *Journal of Product Innovation Management*, 2001, vol. 18, nr 1, pp. 28-38

⁴ Burckhardt H.: Design and Innovation. Design as an Element of the Strategy which Enhances Company Innovativeness and Competitiveness. *TransDesign, International Poznan Fair*, May 2004

⁵ Grzecznowska A., Mostowicz E.: Impact of Industrial Design on Company's Development, *Works and Materials*, 2003, nr 9, Institute of Industrial Design, Warsaw

⁶ Grzecznowska A., Mostowicz E.: Industrial Design: A Competitive Strategy, *Design Management Review*, Fall 2004, vol. 15, nr 4, pp. 55-60

⁷ Grzecznowska A., Mostowicz E., Oporski J.: Design as a Tool of Increasing Product's Innovativeness. Research on Designer's contribution to New Products Creation, *Works and Materials*, 2005, nr 9, Institute of Industrial Design, Warsaw

and glass and ceramics (13); 7 firms operated in more than one industry. Nearly half of them employed over 250 people; small-sized companies (with less than 50 employees) constituted less than 20 per cent of the sample.

Answers were given by the managerial staff.

2. Designers' contribution to the development of innovative products

More and more often Polish manufacturers realize that good design is a powerful tool of gaining a customer. About 65 per cent of the companies declare that they need design services; about 25 per cent have in-house design expertise (mainly the textile companies) and 13 per cent make use of professional design consultancies (this concerns mainly the furniture industry). Although about 36 per cent of the respondents have agreements with foreign parties and make products to order according to the imposed patterns, many of them intend to include domestic design more extensively in their products in the future.

From among the companies, which have been awarded prizes, for innovative products about 54 per cent have in-house design service and about 37 per cent subcontract designers. Full-time staff members (usually 1 or 2 persons) are employed mainly by large firms with more than 250 employees. They perform intensive activities aimed at innovation and are able to bear relevant costs. About 18 per cent of the respondents (mainly large companies in the furniture and household appliances branches) commission professional design projects in a design consulting company.

About 30 per cent of the firms in the sample (mainly small companies with less than 50 employees) do not make use of professional design expertise in the face of financial problems - they say design services are too expensive, and some minor design modifications are performed by their engineering staff.

Companies, which cooperate with industrial designers, gain more benefits than those, which do not. In case of the innovative products awarded design prizes 70 per cent of the respondents admitted that they had been developed by professional industrial designers.

Manufacturers expect designers to develop an innovatory product's design pattern, introduce solutions increasing its quality and functionality, improve its aesthetics to the extent it could compete successively in the marketplace and strengthen its position. Thus the responsibilities of a designer include:

- product's coloring (53%),
- form design (52%),
- product's stylization (47%),
- selection of materials (43%),
- graphic lay-out (34%).

In 49 per cent of the companies designers participate in the development of technical aspects and prototype making. They are also engaged in the modification of existing products, elaborate design expertise, arrange stands at exhibitions and trade fairs, prepare stylization for fashion shows, develop systems of visual identity for the company and its products (30 per cent of the responses).

Nearly all of the companies (97 per cent) which use design services are satisfied with them and intend to continue their cooperation with designers. They appreciate designers' inventiveness, creativity, ability to find new solutions and, at the same time, their consideration for the technological resources of the company and the latest design trends. Manufacturers are of the opinion that designers' participation in the team who are developing a new innovative product would contribute to a wider product range, higher demand; sales rise and increased prestige of the company.

The majority of the manufacturers (about 70 per cent) have recently introduced innovation based on their own construction and design projects, and over 40 per cent of the companies under investigation state that innovative products are those including new technologies. The respondents were also asked to evaluate the role of design in adding the features of novelty to the awarded products. On a five-point scale (1 - insignificant, 2 - of small significance, 3 - of moderate significance, 4 - significant, 5 - of basic significance) design was on average evaluated as more than significant (mean value 4.14).

Apart from design the respondents enumerated other kinds of innovation applied to the awarded products; most often (more than 70 per cent of the responses) they mentioned material innovations (they predominated in the glass and ceramics enterprises), construction (56 per cent, mainly in the household appliances and textile industries) and new technologies (48 per cent, mainly in the textile companies).

3. Impact of design on development process

Attractive design is perceived as a source of success by 41 per cent of all the respondents and 75 per cent of the awarded companies. 55 per cent of the manufacturers under investigation consider that the most important contribution of design to product's development is the improvement of its aesthetic qualities, which attract customers' attention and cause the increase of demand. With the use of the above-mentioned five-point scale the importance of this factor was evaluated in the whole sampled population as more than significant (mean value 4.03). Its impact on product's competitiveness was evaluated only slightly worse (mean value 3.93). Manufacturers also valued highly (3.93) the statement that design increases sales, strengthens company's reputation and considerably improves the quality of products (3.80), mainly as a result of modern ergonomic solutions and care for product's aesthetics. Relationship between design and export sales was generally estimated as moderate. The mean value - 3.21 was undoubtedly influenced by the opinion of those firms, which operate under foreign contracts and therefore cooperate with Polish designers only occasionally.

Design role in product's development and its commercial success is appreciated mainly by large firms with stable financial situation and established position on market. In order to reach a customer they show their products at trade fairs, exchanges and exhibitions home and abroad. This is the basic form of new product's promotion, applied by 80 per cent of the subjects. When they come out with a new, attractive (also in respect of design) offer, they expect higher demand, more orders, they are not as afraid of a commercial failure as small companies with limited resources. Among other promotional activities the following were mentioned most often: information on the company and its products published in trade journals (70 per cent of the responses), catalogues and the internet, and own selling points in large trade networks, whereas radio and TV advertising campaigns were mentioned rather rarely (only 8 per cent of the companies). Promotion is usually the responsibility of company's marketing department;

cooperation with specialized institutions in this respect, such as advertising agencies, is limited by the financial situation of the enterprises.

The research work and the analysis of the collected material made it possible to specify the obstacles to innovation. The respondents are of the opinion that the most important restricting factors are:

- shortage of the own investment means which could be allocated to research and development; too high cost of credits,
- high uncertainty of sales; this is why some of the enterprises take refuge in making goods to order for foreign parties,
- lack of development base,
- insufficient recognition of market demand.

The respondents also underline a short 'lifespan' of new avant-garde products and the relatively late effects of their implementation. The manufacturers also complain that Polish products are not adequately protected against unfair competition, mainly from Far East, and that there are no effective tools to stimulate the development of a new innovative high-quality design product.

4. Costs and effects of design application in industry

About 57 per cent of the respondents participating in our research, conducted in the years 2001-2003, spent not more than 2 per cent of their production costs on design. The expenditures on products' design under R&D allocations were given by 95 companies, and the majority of them spent between 0.1 per cent and 2 per cent on design; 23 per cent of the enterprises spent less than 0,1 per cent, and only 17 per cent of the companies spent more than 10 per cent of their R&D allocations on design.

The enterprises, which had received, design prizes and awards spent more. In about 40 per cent of these companies design expenditures did not exceed 5 per cent of the total costs of an innovative product's development, implementation and promotion, but in another 40 per cent they amounted to more than 20 per cent of the total costs. The smallest expenditures on industrial design were observed in the textile and household appliances companies; many of them, however, did not make designs on their own, but depended on patterns supplied by a contracting party.

Professional design is recognized and awarded at national and international design competitions and sales figures encourage to invest in design services. However the level of investments the manufacturers are willing to allocate to design depends on a number of factors, such as:

- awareness of company's managerial staff of the role of design in enhancing product's innovativeness,
- size of the enterprise – the larger company, (generally) the higher level of design investments, although in the research on the sample of the awarded companies the correlation was reverse (the mean value of design expenditures in small firms was 5 per cent higher than in those large),
- financial situation of the company – enterprises which face financial difficulties are less interested in the investments bearing an element of risk, the more when their effects are of a long-term character,
- size of mass production – every innovation is more profitable in large series,

- segment of market – the manufacturers of classical furniture meant for the lower end of market invested little or nothing in design services.

In order to have a view on the effectiveness of design application, questions concerning the economic output of the last three years, including the levels of sales, profits, exports, number of new products introduced on market, and customers statistics, were asked.

The basic indicator of products' innovativeness – the so-called production renovation measure (the percentage of sales in a given year falling on the innovative products manufactured during the last three years) amounted in a group of awarded firms to 35 per cent, and was twice as large as the nationwide average. It is worth stressing that nearly 1/5 of this group of respondents estimated the percentage of innovatory products sales, as compared to the sales in general, at over 60 per cent. The highest values of this indicator were noticed in the glass and ceramic enterprises (the mean value amounted to 48 per cent), and the lowest (28 per cent) in the household appliances branch. Higher percentage of innovatory products sales was observed more often in the firms, which employed designers than in those that did not.

It was proved that in the enterprises, which made use of design services on a regular basis the rise in sales and profits, was higher than in those firms where designers did not participate in new products' development. As for the level of sales, it raised in almost half the firms investing in design while in those not investing the increase of sales was only observed in one third.

In the majority of the firms awarded at the national or international competitions sales growth was observed. An average sales rise in the first year after introducing an innovatory product on market amounted to 11 per cent, while in the second year to about 16 per cent.

Similar situation was observed as far as profits were concerned; in the population of the companies included in the investigations in the years 2001-2003 the percentage of the firms with profits growth was twice as large in case of the companies investing in design as in those which did not. This referred mainly to the enterprises from the furniture sector. In case of many firms the use of up-to-date design proved profitable together with the consideration for customers' preferences and the competitive price of a product. Higher profits were obtained by the enterprises, which performed marketing activities allowing for design (broad advertising campaigns in the trade press, promotion of new products at trade fairs, exhibitions and selling points).

5. Conclusions

Many Polish entrepreneurs are already convinced of the fact that professional design can significantly increase the quality and competitive power of manufactured products. Therefore they include design into the systems of company's management and the strategy of product's development, aimed at strengthening the firm's position in the marketplace. However, the level of investments in professional design depends mainly on the manufacturer's design awareness and the financial situation of the enterprise, which in Polish SME is usually difficult. Introducing a new product (an original pattern) on market is connected with a significant risk, and therefore many producers decide to imitate foreign designs (patterns), which sell well. Deficiency of means for implementation is an additional difficulty.

This situation means the need for the State support, first of all the instruments to stimulate the development of a new innovative product through design. The state administration should, likewise it is in other countries:

- Develop the state programs of domestic design support, including a system of grants for SME allowing them to develop innovative designs (patterns),
- Provide legal and financial stimuli to encourage manufacturers to invest in industrial design (tax relief system for those who perform innovative activities, reduction in cost of credit),
- Create the infrastructure to support and promote design, especially regional institutions of a design center type,
- Develop the system of information on industrial design for manufacturers and designers (data bases and banks, publications).

It is necessary to popularize the idea of design in business circles, e.g. through educational workshops and design advisory centers.

These activities would give industrial design the opportunity to be used much more effectively and to be recognized as a key factor in economic and cultural development of the country.