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TECHNOLOGY TRANSFER IN THE ORGANISATIONAL MANAGEMENT
PROCESS

The aim of this article was to identify the degree of impact of the cooperation of transnational corporations and Polish companies in the field of technology transfer and knowledge.

Key words: technology transfer, knowledge, transnational corporations.

Introduction. Modern technology, knowledge and investment in people are nowadays important, if not the most important factors for the long-term development of enterprises. Investments in these aspects of increasing corporate value significantly determine their national competitive advantage. Not without significance in this case are the links and cooperation of domestic companies with companies with foreign capital. It is their expansion that is attributed, among others, to filling the gap of capital shortage, transfer of modern technologies, knowledge and skills or diffusion of modern organizational solutions. By implementing their expansion (investment, cooperation, trade), corporations relocate resources and production capacities, stimulate economic growth and efficiency, contribute to the restructuring of sectors and enterprises, activate competition and local entrepreneurship, transmit new methods and patterns of management or strengthen international economic links and interdependencies. [1] Therefore, the aim of this study was to identify the scale of cooperation between domestic and foreign companies, as well as the degree of impact of this cooperation in terms of technology, knowledge and skills transfer. The main study was conducted in 2018 and covered a group of 120 foreign companies from the list of the largest foreign investors in Poland, drawn up by the Polish Information and Foreign Investment Agency. As part of the conducted survey, a targeted selection was applied, which guaranteed a selection corresponding to specific survey criteria.

The obtained results allow for the implementation of the set objectives, in particular the cooperation of foreign enterprises with the entities of the country of deposit, innovative activity of enterprises with foreign capital and the transfer of technology and knowledge by them.

Transfer of technology. Technology transfer in its simplest sense is interpreted as a multilateral flow of information and technology across the boundaries between science, technology and the practical world.[2] The international transfer of technology, which is the subject of this study, is, on the other hand, seen as the process of transferring specific technical knowledge from the donor country and using it, after necessary adaptation measures have been taken, in the recipient country.[3]

Transnational corporations play a key role in international technology transfer. The great importance of multinational companies in the process of technology diffusion results from the fact that these corporations are the source of the majority of technological innovations and have the largest share in research and development work carried out in industry. The technology transfer through international companies is accompanied by the effect of diffusion of knowledge, production technology, marketing management methods and techniques, the effect of demonstration, often accompanied by the effect of mobility of the labour factor and the so-called permanent learning in the country of capital investment.[4]

This chapter will present the results of the survey concerning: innovative activity of foreign enterprises and initiation of technology transfer by them. The results of the innovative activity obtained by enterprises are assessed in terms of [5]:

- quantitative by the number of product, process, marketing, organizational innovations introduced to the market or implemented, but also by the number of protection rights to inventions or trademarks filed by the company,
- value by value and share in total sales of new products or services (market and/or business),
- quality, which requires determining the degree of novelty (modernity) of products, technologies, their environmental performance, level of complexity, types of new or significantly modernized products or processes, the possibility of diffusion of innovation, the scope for improving the quality of new solutions,
- the impact of the innovative activity on the company's financial results - in this case, it is assessed first of all the change in revenues from sales of new solutions, the amount of cost

reduction after the application of the innovation and the determination of changes in financial results in the short (up to one year), medium (up to three years) and long term.

Tendencies to deepen the process of internationalisation of innovative activities by transnational corporations and diffusion of knowledge on a global scale have resulted in the creation of cooperative systems in which cooperating entities from different countries combine a certain nature of technical and production interdependencies. In the era of globalisation, the expansion of the scope of cooperative ties is necessary due to the ever stronger integration of the sphere of science and business, as well as the deepening division of labour, which forces certain external links not only in the production phase, but also in other phases of production.[6].

Assessment of the state of technology transfer on the basis of conducted research. Foreign enterprises operating in Poland were active innovatively, i.e. they introduced or tried to introduce at least one innovation. The research showed that innovations were most often introduced by entities with 250 employees and more in the sector of industrial and service enterprises. These entities implemented both product (40% and 31% respectively), process (45% and 40% respectively) and organisational innovations (60% and 55% respectively). (Figure 1).

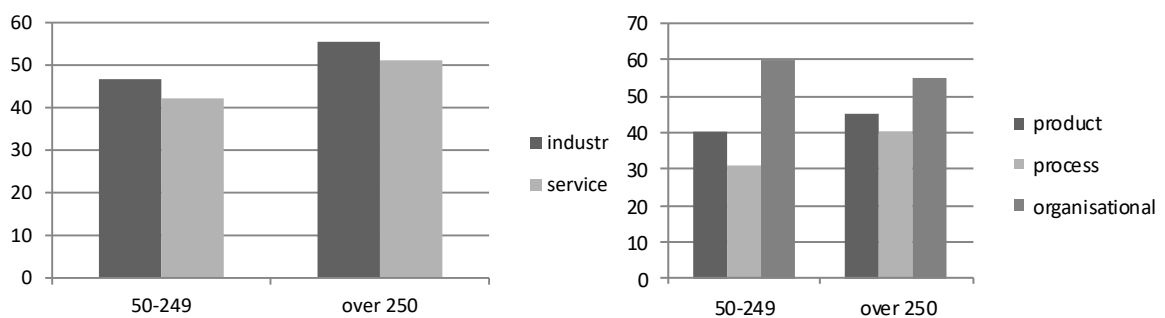
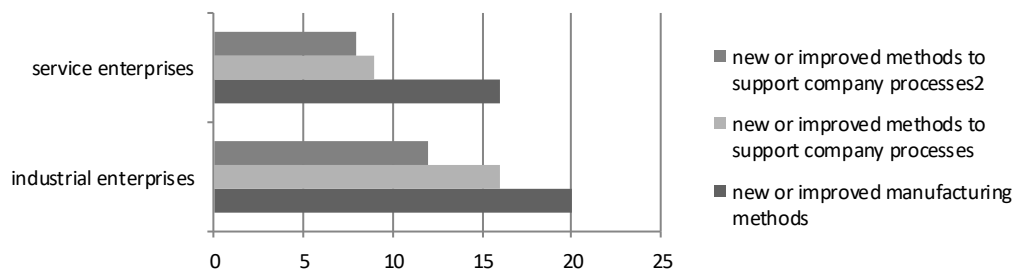


Figure 1. Innovation of the surveyed foreign enterprises

The above data indicate that the number of implemented innovations is higher in industrial or service enterprises employing over 250 people, and the profile of activity has a significant impact on the innovative activity of these enterprises in case of introducing product, process and organizational innovations. The largest number of product innovations were implemented by industrial enterprises (22%). They gained an advantage over service companies also when introducing process innovations within new or significantly improved product manufacturing methods (20%). There was also relatively high interest in introducing new methods on the principles of organization among industrial enterprises (16%). Slightly less frequently, new methods of division of tasks and decision-making powers were introduced by enterprises from the service sector (9%). Whereas in the last group of marketing innovations, industrial enterprises implemented innovations in significant changes in the design/construction or packaging of products and services (16%). The same percentage of innovative activities were introduced by service companies in the field of new media or media guarantee techniques - Figure 2.

Process innovations



Marketing innovations

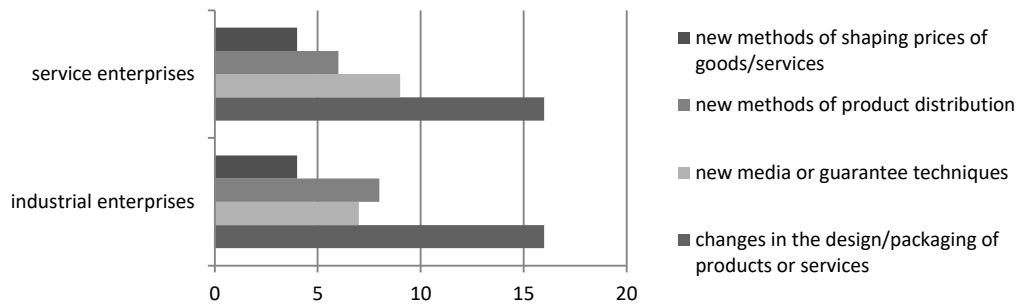


Figure 2. Share of companies introducing innovations (%)

The dominant type of innovative activity carried out by the surveyed foreign companies was investment expenditures in tangible assets: purchase of machinery and equipment, computer equipment, means of transport, as well as buildings (61% of the total number of companies active in innovation). Next, foreign companies incurred outlays on: employee training (nearly 50%), purchase of software related to the introduction of product and process innovations (nearly 40%) and marketing activities related to the introduction of new or significantly improved products (nearly 30%). Incidentally, the innovation activity among foreign companies was related to research and development works. Only 7% of innovatively active enterprises took action in this respect.- Figure 3.

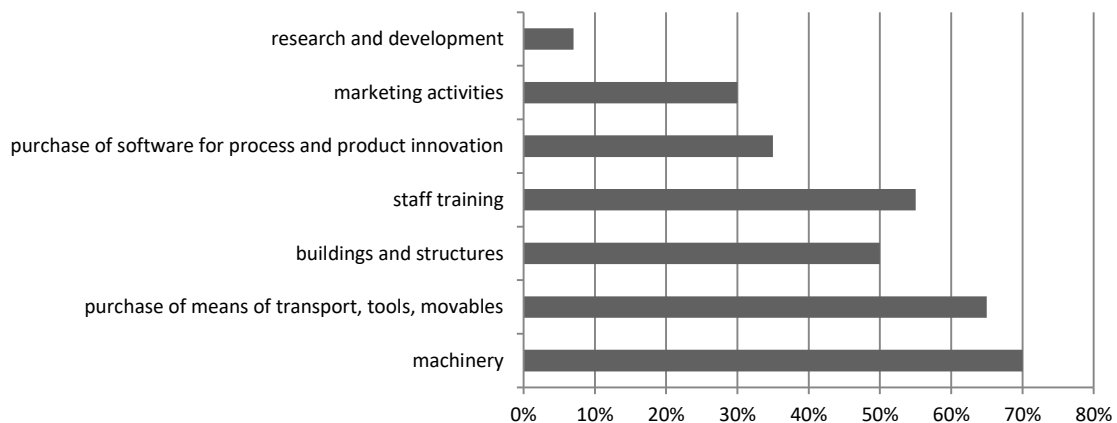


Figure 3. Innovative activity in the group of the surveyed foreign companies

The implementation of the above mentioned investment plans required considerable financial resources (they could be obtained both from internal and external sources).

Most of the surveyed foreign companies financed the planned investments from their own resources (75%). Moreover, in order to carry out innovative activities, external sources of financing were used, such as: bank loans, loans or leasing, funds from EU funds, funds from risk capital funds and other than European funds. Figure 4.

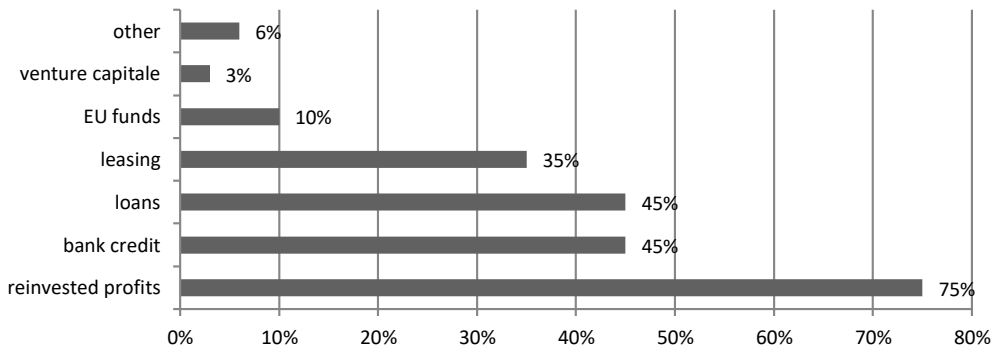


Figure 4. Sources of investment financing for enterprises with foreign participation

According to the group of the surveyed enterprises active in innovation, the main benefits from the introduction of innovations were: general development of the enterprise (nearly 70%), improvement of the quality of products and services (60%), improvement of the organization and working conditions (60%) and increase of work efficiency (70%). The benefits were also visible in the scope of achieved financial results and competitive position- Figure 5.

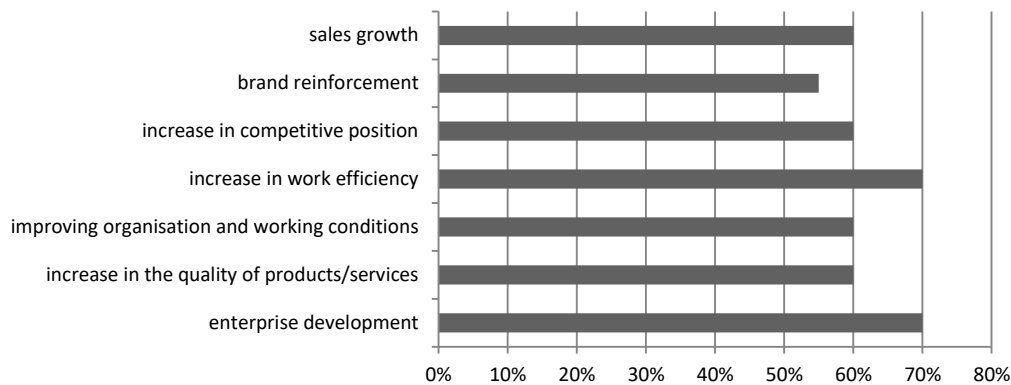


Figure 5. Benefits of introducing innovation

Most foreign companies (76%) have made a technology transfer in recent years involving the purchase of machinery or equipment needed to implement a new or modernize an already existing production or service process, or have gained new knowledge to implement new solutions in the company- Figure 6.

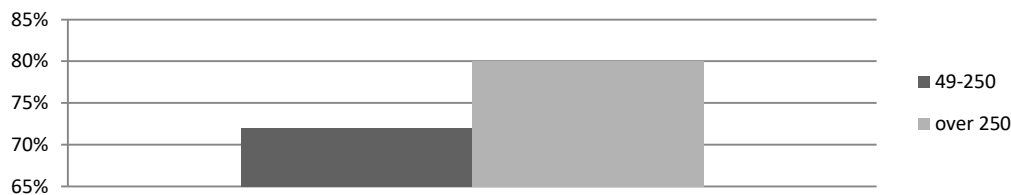


Figure 6. Companies by different sizes that have recently completed a technology transfer

The most common form of technology transfer was: purchase of machinery and equipment (78% of indications) and consulting services (32% of indications). Next, foreign companies indicated: purchase of licences (20% of indications) and purchase of scientific research results (9% of indications) - Figure 7.

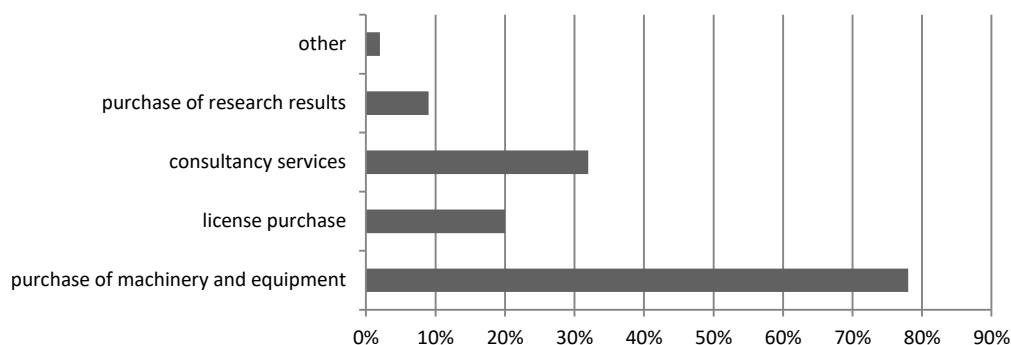


Figure 7. Method of technology implementation

Conclusions. The following conclusions can be drawn from the analysis above:

- the innovative activity, regardless of its type, is correlated with the size of the company: the bigger the company, the more often different types of innovative activity are conducted and outlays for this activity are incurred;
- investments made by enterprises with foreign capital participation were most often related to the purchase of fixed assets, training of employees and modernisation of buildings and structures;
- the main source of financing of innovations were own funds of companies;
- the basic external source of funds for innovation were traditional financial institutions and European funds,
- the entrepreneurs had a good understanding of new technological solutions in the industry;
- most of the surveyed companies have recently implemented innovations by purchasing technology, mainly machinery and equipment;
- the role of technologically imported goods was important for the productivity of domestic industrial companies;
- the choice of the source of technology transfer was influenced by both the type of innovation implemented in the company and the support from business environment institutions.

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