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IN SEARCH FOR EXCELLENCE IN GLOBAL PRODUCTION NETWORKS

Abstract: The article indicates a possibility of the transition of the role of foreign factories from the offshore low cost production sites to the lead centres of process excellence. Firstly, the author outlines changes in geographical scope and configuration of global production networks, underlining the importance of so called low cost countries located in South and Eastern Asia, Central and Eastern Europe as well as in Central and South America. Secondly, the evolution of the role of foreign factories is carefully explained in the light of methodology proposed by K. Ferdows. Additionally, best practice case of BSH Sprzęt Gospodarstwa Domowego Sp. z o.o. is presented to illustrate its process excellence in global production network.

Key words: global production networks, process excellence, low cost countries.

1. Introduction

First of all, accelerating globalisation of markets leads to significant changes of geographical scope and configuration of global production networks. It is worth mentioning that the primary shift of production and assembly operations has been made to so called *low cost countries*, located in South and Eastern Asia, Central and Eastern Europe as well as in Central and South America. Furthermore, global corporations make huge efforts to develop strategic potential of their foreign factories and start to use them as important sources of strong competitive advantages. The need for analyses focused on production megatrends is enhanced by the fact that more than 50% of manufacturing will be probably globalised by 2010.[1] This topic is also worth considering because Poland is one of the low cost countries and factories located here are included into global production networks.

Major aim of this article is to highlight the transition of the role of foreign factories from the low cost production sites to the centres of process excellence. Firstly, the author analyses current changes in geographical configuration of global production

[1] S. Cohen, R. Geissbauer, A. Bhandari, M. D'heur, *Global Supply Chain Trends 2008-2010. Driving Global Supply Chain Flexibility through Innovation*, 6th Annual Survey by PRTM Management Consultants, p. 4.

networks, answering the question: where in the world is manufacturing mostly located? Secondly, the evolution of the role of foreign factories is explained in the light of methodology proposed by K. Ferdows, addressing the question: What is the long-term strategic purpose of foreign production plants? Finally, the best practice case of BSH Sprzęt Gospodarstwa Domowego Sp. z o.o. as superior company is presented to illustrate process excellence in its global production network.

2. Geographical shift in global production networks

Generally, companies make decisions about production localisation after careful analysis of the following groups of factors:

- **country factors**, e.g. economic system, political stability, trade barriers, currency exchange rates, inflation rates, access to infrastructure, labour costs, raw materials' costs, land costs, intellectual property protection, transparency of legal system, fiscal policy, government incentives, grants and subsidies, language and cultural differences, corruption, environmental regulations, climate, proximity to marketplace;
- **technological factors**, e.g. level of fixed costs required to setting up a production plant, achievement of economies of scale in the production process, available manufacturing systems and technologies;
- **product factors**, e.g. the product's value to weight ratio, levels of innovation or standardisation of products, differences in consumers' preferences, demand characteristics, product safety or phase in the product life cycle.

It should be added that the categorisation of factors could be also different. J. Rymarczyk indicated their following groups that should be considered in the light of the localisation theory: institutional and political conditions creating so called *investment climate* in particular country (e.g. regulations, fiscal decisions, political stability, legal security, social attitude to foreign investments), cost factors (e.g. access and costs of production factors, especially wages), market factors (e.g. market size, its growth dynamic, presence of competitors, export possibility and external market protection, phases of market development as well as products' life cycle), trade barriers (e.g. customs regulations, licenses, duties, contingents, state subventions for local companies).[2]

Taking the above-mentioned factors into account, **attention of global corporations is nowadays attracted mostly by emerging economies.** With regard to the A.T. Kearney's latest report *Assessment of Excellence in Procurement 2008*,[3] increased focus on the emerging economies is currently one of the most important tendencies in global networks and has large potential for further development

[2] J. Rymarczyk, *Internacjonalizacja i globalizacja przedsiębiorstwa*, PWE, Warszawa 2004, p. 41.

[3] *New supply realities*, www.atkearney.com.

according to dynamic increase in their share of world output and in foreign direct investment flows.

Firms from developed, high cost countries extend their production networks to the far reaches of the world and move production facilities to less developed low cost countries, located in South and Eastern Asia, Central and Eastern Europe as well as in Central and South America. As a result, low cost countries compete with each other for foreign direct investments. Currently, China – called *factory of the world* – remains the preferred offshoring location attracting more than a third of global investments and is followed by India and Eastern Europe.[4] According to the results of the author's own research carried out in 2009, the most important low cost countries in production networks of companies located in Poland are: Bulgaria, China, the Czech Republic, Hungary, India, Poland, Romania, Russia, Slovakia and South Korea.[5]

3. Competitiveness of production sites

Following the definition proposed by S. Fawcett (1992), ***global manufacturing* means a production and logistics system, providing the best mix of inputs from worldwide locations along the value-added chain**.[6] As a result, competitiveness of production sites should be analysed and compared not only with regard to manufacturing operations (production system), but in much broader scope addressing additional question: how to organise the material flows between globally dispersed facilities (logistics system)?

There is no doubt that the most important driver to develop production in South and Eastern Asia, Central and Eastern Europe, Central and South America are lower costs – especially of labour. Realisation of cost driven global manufacturing strategy by many corporations from various sectors is motivated mainly by strong market pressure on cost reduction. But, decisions based on calculations limited to costs of production system could be suboptimal. Managers should consider also costs occurring in logistics system responsible for activities to get materials to manufacturing facilities, through the manufacturing process and out to the destination points.

Furthermore, it should be strictly underlined that costs are not the only driver of competitive advantages of production networks in today's global business. There are many other potential uncertainties and risks that may offset gains from lower costs or even result in losses to the manufacturer, e.g. loss of production network

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[4] S. Cohen et al., *op. cit*., p. 7.

[5] The role of each country varies depending on industry represented by the company. More information: B. Ocicka, Koszty zaopatrzenia na rynkach niskokosztowych – wyniki badań, *Gospodarka Materiałowa i Logistyka* 2009, nr 12, pp. 8-13.

[6] S. Fawcett, Strategic logistics in coordinated global manufacturing success, *International Journal of Production Research* 1992, Vol. 30, No. 5, pp. 1081-1099.

flexibility and responsiveness, lower quality of delivered goods, and, in consequence, unsatisfactory consumer service levels.[7] Companies developing global production networks should take into account the following factors: costs, quality, flexibility, customer service level, time and corporate social responsibility.[8] The effect of rivalry between production sites depends strictly on the achievement of best balance between key competitive factors that must be suited to business strategy of a focus firm (compare Figure 1).

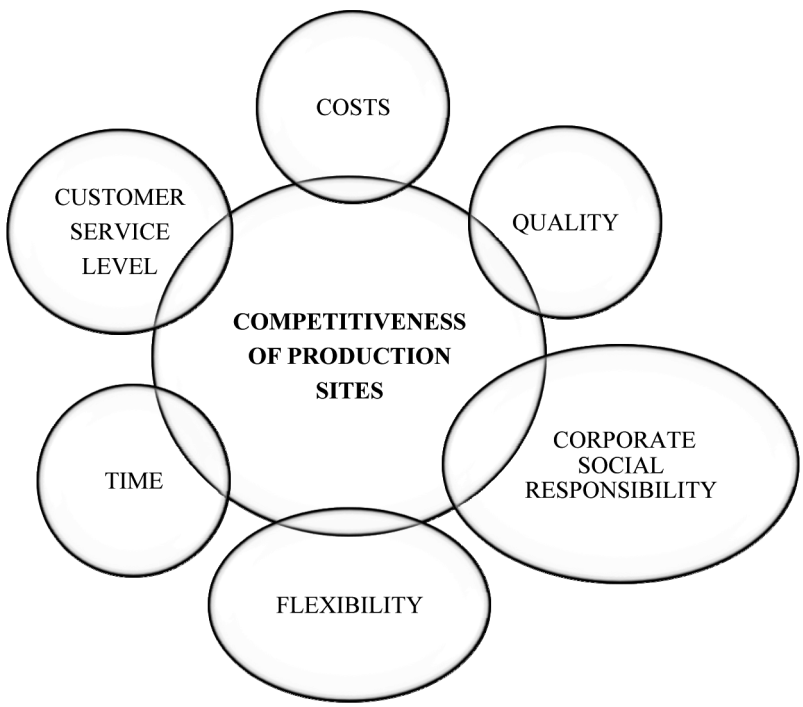

Figure 1. Key factors building competitiveness of production sites

Source: author's own elaboration, 2009.

Moreover, the competitiveness of a production sites can be improved continuously. As a result, foreign factory can enhance its strategic role in global network and become

[7] J. Kamauff, R. Spekman, The LCCS success factors, *Supply Chain Management Review*, January/February 2008, pp. 14-21; N. Song, K. Platts, D. Bance, Total acquisition cost of overseas outsourcing/sourcing: a framework and a case study, *Journal of Manufacturing Technology Management* 2007, Vol. 18, No. 7, pp. 858-875; R.R. Young, P.F. Swan, E.A. Thomchick, K. Ruamsook, Extending landed cost models to improve offshore sourcing decisions, *International Journal of Physical Distribution and Logistics Management* 2009, Vol. 39, No. 4, pp. 320-335.

[8] Author's own elaboration based on literature review.

a centre of process excellence. Production plant initially established only to take the advantage of low cost inputs can evolve into the facility with advanced capabilities, e.g. regarding logistics competences. Categories of the factories' strategic role and its development paths are presented in the next part of this article.

4. Evolution of foreign factories' role

K. Ferdows presented a framework focused on the strategic potential of foreign factories and indicated six ascending classes. At the bottom, the offshore location is primarily a low cost production site and its output is exported for sale or further processing. At the next stages of development, foreign factories improve continuously their competences and capabilities. As a result, they gain strategic importance in the era of global competition and are considered as potential sources of unique competitive advantages. K. Ferdows presented the methodology that allows to evaluate the role of foreign factories in global production network of a company (compare Figure 2).

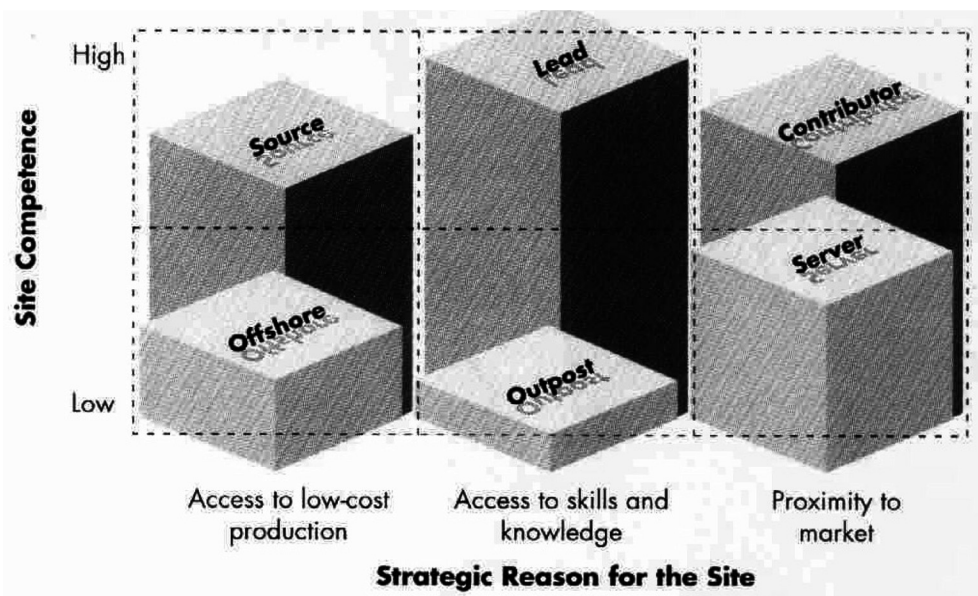

Figure 2. Roles of foreign factories: a strategic mix

Source: K. Ferdows, Making the most of foreign factories, *Harvard Business Review* 1997, Vol. 75, No. 2, p. 77.

In this concept, there are six categories indicating importance of foreign production plants with regard to answers to the following fundamental questions:

– what is the primary strategic reason for the factory's location?
– what is the scope of its current activities (site competences)?[9]

Table 1 presents descriptions of most important aspects of each factories' category with regard to their rising strategic role in global production networks of corporations. There are some factories that combine the above-mentioned roles, e.g. regarding different groups of products and their life cycles' phases, various segments of customers or target markets dispersed geographically. Following the sequence of development stages, foreign factories perform functions beyond mere production such as procurement and suppliers development, product engineering, logistics or after-sales services.

Table 1. Phases in development of foreign factories' role

STRATEGIC ROLE ↓

Type of factory	Description
Offshore factory	• established to produce specific items at a low cost • produced items are exported either for further work or for sale • outbound logistics operations are simple and beyond the control of the plant's management • local managers rarely choose key suppliers or negotiate prices, they follow the instructions, methods and plans handed down to them
Source factory	• the purpose for its establishing is low cost production • its managers have greater authority over procurement, production planning, process changes, outbound logistics, product customisation and redesign decisions
Server factory	• supplies specific national or regional markets • rovides a way to overcome tariff barriers and to reduce taxes, logistics costs or exposure to foreign-exchange fluctuations • its authority and competence in products and production methods is very limited
Contributor factory	• serves a special national or regional market • its responsibilities extend to product and process engineering as well as the development and choice of suppliers
Outpost factory	• is placed in an area where advanced suppliers, competitors, research laboratories or customers are located • its primary role is to collect information and gain access to the knowledge or skills that the company needs
Lead factory	• creates new processes, products and technologies for the entire company • its managers have a decisive voice in the choice of key suppliers and often participate in joint development work with suppliers • many of its employees stay in direct contact with end customers, machinery suppliers, research laboratories and other centres of knowledge, they also initiate innovations

Source: author's own elaboration based on: K. Ferdows, *op. cit*., pp. 76-77.

[9] K. Ferdows, *op. cit.*, p. 77.

There are great possibilities to develop a particular production plant from offshore to highly productive and innovative lead factory through continuous improvement of processes (analyse Figure 3).

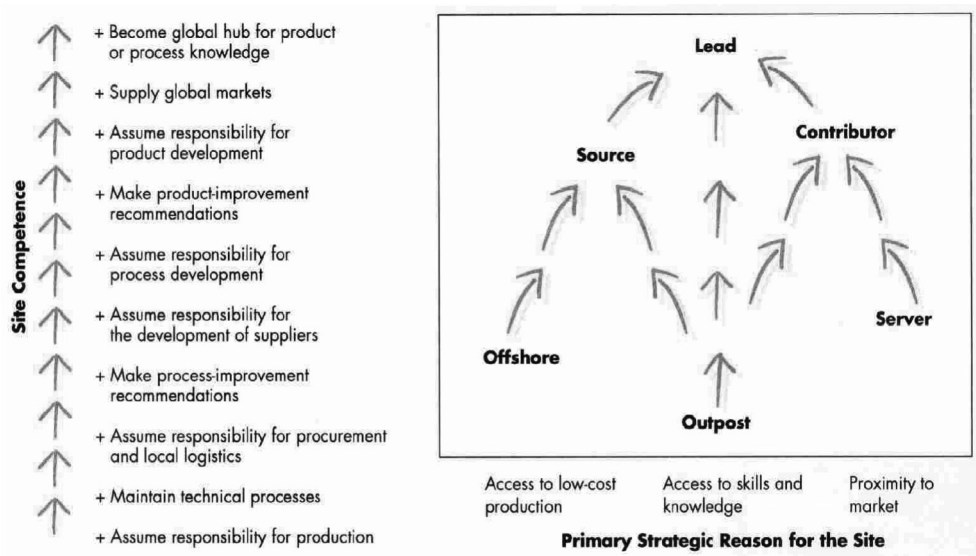

Figure 3. Paths to higher strategic roles

Source: K. Ferdows, *op. cit.*, p. 79.

Usually, the decision to upgrade the role of plants is determined by business strategy of a focus company. According to K. Ferdows, companies that treat their foreign plants as a source of competitive advantage are rewarded in the form of higher market shares and greater profits.[10]

Superior manufacturers use foreign plants to get closer to their customers and suppliers. These factories perform processes beyond manufacturing operations. In consequence, these additional functions have also been globalised. Presented results of the survey show the highest rates of growth with respect to the globalisation of the following processes in the period from 2008 to 2010 (compare Figure 4):

– product development,
– innovation and technology development,
– IT and shared services.

Factories, that beyond production realise successfully other processes, will achieve greater balance between critical competitive factors and play strategic role in global production networks.

[10] K. Ferdows, *op. cit.*, p. 74.

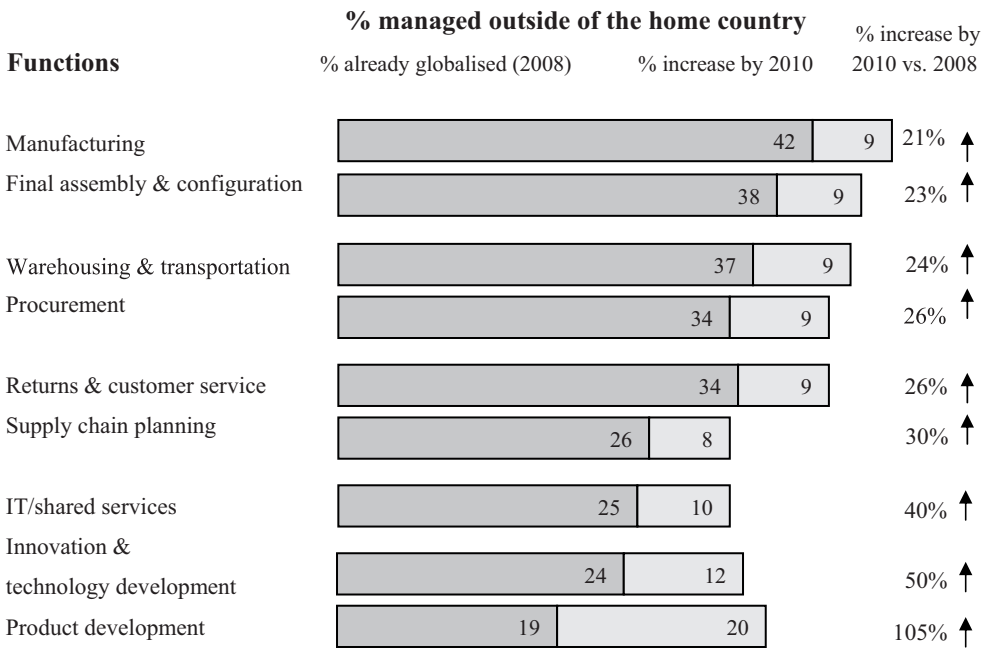

Figure 4. Globalised functions 2008 and projected increase by 2010

Source: S. Cohen et al., *op. cit*., p. 4.

5. Best practice case of BSH clothes dryers' factory in Łódź[11]

BSH Bosch und Siemens Hausgeräte GmbH is a German corporate group operating worldwide. Currently, BSH has 43 plants located in the following countries: Brasil, China, France, Greece, Spain, Germany, Peru, Poland, Russia, Slovakia, Slovenia, Thailand, Turkey and the United States. Poland plays an important role in the global production network of the German white goods manufacturer. BSH chose Łódź as the localisation for its production plants of washing machines, dishwashers and clothes dryers. Initially, the deciding factors were as follows: access to well-educated employees, industry traditions and geographical localisation in the central part of Poland and Europe.[12]

The author turned special attention to the clothes dryers' factory in Łódź. Currently, it is the only BSH production plant of these appliances in Europe and

[11] Further information: B. Ocicka, The influence of product development on warehousing and transport efficiency. Best Practice Case of BSH Sprzęt Gospodarstwa Domowego Sp. z o.o., [in:] K. Rutkowski (ed.), *Best Practices in Logistics and Supply Chain Management*. *The Case of Poland*, Warsaw School of Economics Publishing, Warsaw 2009, pp. 101-130.

[12] http://www.bsh-group.pl/index.php?page=106400 (accessed 10.2.2009).

plays the role of a lead factory. It is located in Poland because of the guarantee of high flexibility in production and logistics systems. The Polish factory has developed the product in a way that allows to achieve higher efficiency of warehousing and transport. The production plant initiated innovations and implemented changes in size, weight and packaging of manufactured appliances. As a result, the following effects were achieved:

– 50% higher productivity in collection of production, warehouse transport and picking-up operations,
– 33% higher utilisation of warehouse space,
– reduction of trucks number by 25%,
– 33% higher productivity of loading.[13]

Implementation of unique best practice in the Polish factory has enhanced the competitiveness of this plant with regard to such critical factors as: costs, time, flexibility and social corporate responsibility. Achieving excellence in production and logistics processes, the BSH factory has evolved into the world-class lead factory.

6. Conclusions

Searching for excellence in global production networks is especially interesting challenge with regard to the transition of facilities located in low cost countries from offshore to lead factories. Low cost production plants can be highly productive and innovative. These facilities achieve low costs and offer superior customer service level on the global market. Companies should continuously review the role of their plants in global production networks and develop their potential with regard to realised business strategies. Factories can improve their competences and gain higher competitiveness. BSH clothes dryers' manufacturing plant in Łódź is an example worth following. The Polish factory has implemented best practices not only in production, but also in product development and logistics processes. As a result, it has successfully increased its strategic role in global production network of German corporation.

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W POSZUKIWANIU DOSKONAŁOŚCI W GLOBALNYCH SIECIACH PRODUKCJI

Streszczenie: Artykuł wskazuje na możliwość przemiany roli zagranicznych fabryk z niskokosztowych obiektów produkcyjnych w wiodące centra doskonałych procesów. Po pierwsze, autorka nakreśla zmiany w geograficznym zasięgu i konfiguracji globalnych sieci produkcji, podkreślając ważność tzw. krajów niskokosztowych zlokalizowanych w Azji Południowej i Wschodniej, Europie Środkowej i Wschodniej, jak również w Ameryce Środkowej i Południowej. Po drugie, została wyjaśniona ewolucja roli zagranicznych fabryk w świetle metodologii zaproponowanej przez K. Ferdowsa. Dodatkowo zaprezentowano studium przypadku firmy BSH Sprzęt Gospodarstwa Domowego Sp. z o.o. jako ilustrację doskonałości procesowej w globalnej sieci produkcji.