

COMPETITIVENESS OF HIGH-TECH MACHINERY EXPORT AND COUNTRY OF ORIGIN EFFECT

КОНКУРЕНТОСПОСОБНОСТЬ ЭКСПОРТА ВЫСОКОТЕХНОЛОГИЧЕСКОГО ОБОРУДОВАНИЯ И ЭФФЕКТ СТРАНЫ ПРОИСХОЖДЕНИЯ ТОВАРА

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Abstract: The goal of the research is to evaluate the influence of country of origin effect on export of high-tech mechanical engineering products and competitiveness of the machine building enterprises abroad. The article deals with the foreign economic activity of JSC "PA "Ural Optical & Mechanical Plant" named after E.S. Yalamov" - large industrial enterprise of Sverdlovsk region in Russia. The authors use methods of case-study and economic analysis to determine the competitiveness of medical equipment abroad and dependence of export sales on the perception of country brand "made in Russia". As a result the schemes of subcontracting and production under Private Label Manufacturer for the high-tech machinery with obligatory international certification are offered. These instruments can help to increase the export potential and competitiveness of the Russian machine-building enterprises under the conditions of new industrialization and globalization.

Keywords: COMPETITIVENESS, COUNTRY OF ORIGIN EFFECT, COE, PLM, OEM, ORIGINAL EQUIPMENT MANUFACTURER, SUBCONTRACTING, PRIVATE LABEL, INTERNATIONAL COOPERATION

1. Introduction

The orientation to foreign markets for products sales is becoming the important direction of development of national machine-building enterprises in the conditions of active integration of the Russian companies into the world economy. In this regard the importance of searching the ways for expansion of Russian high-tech machinery export is growing. The enterprises have to develop new technologies and improve the quality of mechanical engineering products. The developing an export of the competitive high-tech machinery goods gives the chance to Russian enterprises to survive in the competitive world market. The competition acts as a force providing interaction of the supply and demand counterbalancing market prices.

One of the main goals of each enterprise is to increase its competitiveness. But also it is well known, that the machinery products can be made almost everywhere and can have many standard core features. Therefore, producers often turn to country associations to differentiate their brands, bringing goods to the market. It has received the name of "country of origin effect (COE). The COE has been also extended to the context of country of design and country of assembly as a result of the globalization process and development of multinational companies [14]. Strong image of the country, its compliance to core product characteristics determine a positive image of the country of origin in the opinion of the consumers and influence on the decision of purchase [16]. So, for the goods assembled in Germany or Japan the consumer is ready to pay more, than for the similar goods assembled, for example, in China.

In case of entering into the foreign markets many Russian companies face the same problem – goods from the Western European countries are in a great demand, than Russian. And even in the CIS countries in many tenders the participants get more points if they can offer local goods (state support of domestic producer), or European goods. As a result, possessing competitive goods and competitive price, the Russian producer is involved in the competition of the country brands "made in ...".

Nowdays the "made in Russia" brand in Russian machine building is not very attractive to the consumers. In the most cases it is more competitive, than the "made in China" brand and it is, usually, enough for an entry into the markets of South-East Asia, the Middle East, India, Latin America, but it is an obstacle to enter into the markets of high developed countries. There is a problem how to get over the negative perception of high-tech mechanical engineering products made in Russia and to increase the international competitiveness of Russian machine building enterprises.

2. Preconditions and means for resolving the problem

Creation of a positive country brand is a task of the state and it is important to be engaged not only in support of the export enterprises, but also to promote a brand of the country at the national level. The certain steps for this purpose have been taken already in Russia. For example, the state takes the following steps for export support: improvement of the separate administrative procedures on conducting foreign economic activity since 2011, simplification of compensation of the VAT by exporters, crediting of exporters with the subsidized interest rate [8]. The various institutes for export support are created: the Russian export center, Export insurance agency of Russia, etc. work. However all these measures don't exert a considerable impact on foreign trade activities of the industrial enterprises. The small and medium-sized enterprises often don't have full information about these measures of support, and there are not so much large competitive companies to increase an export turn of Russia. Besides, it is more important not to provide privileges and subsidizes, but to create the general favorable terms for export. An entry into the foreign markets is possible only if the top managers of the enterprise set before themselves such purpose and are interested in foreign economic activity. Especially it is important to do for high-technological branches.

According to classification of the United Nations Industrial Development Organization we can name as high-tech industries the following branches: chemicals and chemical goods; machines and equipment, including office and computer equipment; electrical machines and devices, television and communication equipment; medical and optic instruments; cars and other vehicles. In these branches Russia loses the competitive positions in the world markets. Now the main task of the Russian machine-building enterprises is to increase and develop the export potential. Many researchers note the importance of development of the export potential of the enterprise as bases of modernization of the Russian economy in general [3, 6, 9].

The export potential of the machine-building enterprise is an open economic system, and has ability to development inside the enterprise, but it is characterized by essential dependence on influence of different factors of the external environment. Therefore management of the export potential of machine-building enterprise can be considered as a set of the subject and the object of management interacting on the basis of managing influence and feedback for the purpose of ensuring the certain qualitative and quantitative parameters characterizing processes of change in the industry [4]. At the same time management of the export potential

of machine-building enterprise has a system character. For achievement of the set level of its implementation it is necessary to conduct researches regularly, to prove, control and regulate the happening processes [2].

Since the end of the 20th century researchers note the beginning of the third industrial revolution which is characterized by informatization of business processes and forming of the international networks [11]. And a few years ago the group of the German scientists, politicians and businessmen announced the future Fourth industrial revolution or the Industry 4.0, which is characterized by active development of new technologies and serious restructuring of global value chains (distribution of technologies of "the smart factories", flexible interaction of virtual and physical systems of production, active implementations digital and nanotechnologies and etc.) [10]. Thus, it is vital for the enterprises to offer the market high-tech products and to provide continuous process of their improvement. Russian machine-building enterprises are interested to use the new technologies of the advanced countries to increase quality of the products and also to solve a problem with an attractiveness of a country brand.

The developed foreign markets are open for the large corporations which have financial possibilities to promote the goods and maintain communications with foreign partners and also for the companies with unique and competitive goods. Russian enterprises of military industrial complex and power engineering are quite competitive [8]. However, even these enterprises face the problems of overcoming perception of the Russian COE abroad. As a matter of experience "Ural Optical & Mechanical Plant", we offer two schemes to increase the efficiency of international trade for Russian enterprises: development of the international cooperation in the form of subcontracting and use of Private label manufacturer.

3. Solution of the examined problem, Results and Discussion

According to most of researchers, the COE influences on the preferences of consumers. The COE is "any influence that the country of manufacture has on a consumer's positive or negative perception of a product" [15]. From the earlier studies [21], it appeared to have a large impact on consumers' evaluation and purchasing behaviour. A conceptual relationship between the country of origin and the attributes of a product is developed, whereby the perception of the country of origin is linked to the product in a country-product assimilation that guides the consumers' evaluation of the product [13].

Another definition of the COE is "the overall perception consumers form of products from such a country, based on their prior perceptions of the country's production and marketing strengths and weaknesses" [19].

With the development of the global markets since the end of the 1990th years in scientific literature there was a differentiation of the country of origin effect (COE) on country of manufacture (COM) [20], the country of assembly and the country of design (COD) [18]. In the process of formation of large international industrial enterprises the difference between COM and COD grows. At the same time the global companies begin to manipulate a brand, offering the consumer the most attractive COE. Direct investments of the multinational companies to developing countries to reduce the production costs accelerated process of formation of hybrid goods and brands with double nationality [17].

The opinion about the country brand is created under the influence of a large number of various factors. The political system, scientific achievements, tourism, figures of policy, culture, sport, an export of goods and services, cultural values, competitiveness of the firms and goods, image of trademarks have the greatest value [7].

At entry into the foreign markets many Russian companies face a competition of goods from the Western European countries. The "made in Russia" brand isn't attractive to the consumers of machine. The stereotype of foreign consumer concerning the Russian production is the following: not very expensive products, with bad package, an ugly design, an unstable

quality, a weak service. And even if all these defects are eliminated a quality of the products is high and a service support for the foreign consumer is provided, the available stereotype influences on the buyer and on making a decision about purchase of the goods.

Depending on a level of development of the enterprise it is offered the several schemes to improve the position of the Russian industrial companies in the world markets.

For the enterprises with the low level of technical development or a lack experience of foreign economic activity we can offer such effective method as development of the international cooperation in forms of a subcontracting and "screwdriver assembly". Depending on opportunities of the enterprise the subcontracting can be carried out in three forms:

- a classical subcontracting - production and delivery to the customer of the components and accessories of machine-technical products made according to the international (Russian) standards and delivered in bulk (for example, fasteners, a packaging material, etc.);

- OEM (Original Equipment Manufacturers) - designing, production and delivery to the customer of the units, blocks and separate details according to the agreed specification.

- ODM (Original Design Manufacturers) - development, production and delivery of the units and separate details made by request of the contractor and delivered to it in limited quantities and in strictly certain terms (innovative outsourcing).

In general the main benefit of subcontracting is that it gives the chance to small and medium business to pass from the simplest schemes of value added to own industrial production, and the large enterprises can reduce the expenses and pay attention on production of the main products.

As an example we can describe a case of cooperation of JSC "PA "Ural Optical & Mechanical Plant" ("UOMZ") with such companies as "DISIME S.A. de CV", Mexico and "Special Laboratory Equipment Ltd" ("SLE Ltd"), Great Britain.

"UOMZ" is the industrial enterprise of Sverdlovsk region which is engaged in development, production and sale of goods of both special and civil appointment (medical equipment, lighting devices and surveying instruments). The main strategic objective of "UOMZ" is growth and innovative development of business and strengthening the positions in the market, increase in competitiveness and investment attractiveness of business [5]. The enterprise has a high level of foreign economic activity, delivers the products into 88 countries of the world.

The cooperation "UOMZ" with "SLE Ltd", Great Britain has begun with "screwdriver assembly" of simple medical devices on the basis of purchase of necessary details and the equipment at "SLE Ltd" and has developed into the Russian-British joint production of high-technology artificial lung ventilators. Development of cooperation was followed by the investments into personnel (training, advanced training), into engineering process (receipt of design documentation, drawings, schemes), into the equipment and production capacities of Russian enterprise.

Though the value added of "UOMZ" in this cooperation was small (about 15%), cooperation has allowed the Russian enterprise to get the following competitive advantages:

- to expand the range of products, to enter into a line of medical devices three new hi-tech artificial lung ventilators that has led to updating of civil production of the plant for 6,7% whereas for the same period without cooperation updating of the production line was carried out for 1-1,2% only.

- to increase the sales volumes of medical equipment. In calculation the actual and planned size of proceeds from sales of medical products were used. The percentage of fulfillment of a plan at the beginning of cooperation was 85%, after the starting of production of third model of ventilator they have got fulfillment of a plan 120%.

- to begin own collaboration and production of hi-tech ventilators. In 2008 own ventilator for newborns APDN-01 UOMZ has been developed and entered into serial production at the enterprise.

This cooperation has allowed "UOMZ" to attract investments in a productive form, to expand the range of products, to increase sales volumes and on the basis of the knowledge and technologies received from the partner, to begin an independent research and development and production of new high-technology medical products.

Cooperation "UOMZ" with firm "DISIME S.A. de CV", Mexico was developed on the principles of "screwdriver assembly" of surveying instruments in Mexico using "UOMZ" component parts and technologies. The revenue of assembly sets was lower in comparison with exports of finished products. The finished products were sold in Mexico under other brand, and this cooperation has allowed the Russian enterprise to enter the market with smaller costs, than in case of opening subsidiary company or representative office and allowed to find new partners in Peru, Brazil, Colombia and Chile.

The tool of "screwdriver assembly" can be used also in foreign tenders. As a rule, the state wants to protect local producers and provides additional points to the participant of the tender offering local goods. In order to overcome this barrier it is possible to conclude agreement with local partner about "screwdriver assembly".

Certainly, these forms of cooperation shall not be final purpose in the activity of the enterprise and it is necessary to avoid dependence on the foreign partner, but it is reasonable to use them as a temporary measure in a complex with other actions of foreign economic activity.

The second method helping to overcome a problem of negative perception of the COE in case of entry into the new developed markets can be PLM system (Private Label Manufacturer). PLM means that the goods and services are made by the third-party producer under the order of the owner of brand and are sold under the brand of the owner. Usually trademarks belong to the producers and private brand (wholesale and retail sellers) [5]. For the long time goods in retailing were on sale mainly under trademarks of the producers. However at the end of the 20th century the increasing number of department stores, supermarkets, shops of cloth, household devices, drugstores began to involve the private label into the assortment.

Almost all large the Russian retail networks of household devices have PL. So, "Eldorado" has Elenberg and Cameron, "Mir" has Trony, "Tehnosila" has Techno. Network "Elektroflot" has got a brand Bork, and "M.Video" organized its own production company "Sokol". In the market of mobile communication the network "Evrosset" promotes goods under two brands: actually "Euroset" (accessories and cards of payment) and "Evrofon" (skype-made phones). There are some examples of using this strategy in IT business. For example, the RSI company actively promoted monitors under the brand GreenWood in the Russian market some time ago. Merlion offers the partners five own trademarks: iRU (PC), Ippon (UPS), Jetbalance (acoustics), Oklick (keyboards and manipulators), Digma (gadgets and "memory") [1].

In the classical "product" theory of private label the main task of these goods consists in distribution of the positive associations connected with the brand to the sold goods. Thus, it is possible to receive additional benefit from using successful, strong brand and to spare money on advertizing. But in addition this tool allows to decrease negative influence of the weak country brand and to receive extra benefits from entering into the foreign markets. For example, the Russian company promotes and sells household devices, equipment and electronics in the markets of the CIS under trademark Bork. In 2001 the Tekhnopark company has decided to invest funds for creation of own brand, and has soon registered in Germany the BORK Electronic GmbH company owning the rights to the trademark. Production capacities of the company are located in the different countries, however, in case of promotion of this equipment in Russia accent is placed on the German quality – "Bork – made in Germany".

There is the popular scheme when the firm is registered in the USA, Japan or Europe, while the production of electrical equipment is placed in the countries of Southeast Asia, and devices

are sold in the Russian market. At the beginning of the 21st century such scheme became popular thanks to a deficit of the cheap equipment against decrease in purchasing power of Russians after crisis of 1998. Now Russian producers do not try to create western PLM of electrical devices because the consumers know that such devices are made in China and Hong Kong. Therefore usually it is specified that goods are delivered from Southeast Asia, and it is perceived by the consumer positively.

However for some goods "the Russian production" is still not advantage in the opinion of consumers. In particular, the Russian medical equipment can be such goods. The situation in this field is complicated also by the fact that these goods require obligatory international certification. So, in case of promotion of the Russian medical equipment into the market of Europe the CE certificate is obligatory. In this case it is impossible just to sign the contract for use of trademark. PL manufacturer shall have also European certificate on this product.

If the OEM manufacturer (the Russian enterprise) has ISO-certified production and the CE certificate on products planned to export, then he has the right to attract the authorized certification body and to carry out certification of own foreign subsidiary opened, for example, in Germany as the PLM. At the same time for the PLM it is not required to have production capacities, it is necessary to have only effective certified quality management system and the contract with the OEM to agree all obligations of the parties.

Successful procedure of the international certification opens access not only to the European market, but also to the markets of many other countries recognizing this certificate. The scheme OEM-PLM can help the Russian producers take part in foreign tenders, offering products under a brand of foreign subsidiary.

But using the scheme OEM-PLM, it is important for Russian companies to save a role of OEM as only it will help to increase competitiveness of the production. Besides, it is important to enter Russian products into the markets of the developed countries as it allows the Russian producers to establish for itself higher level of knowledge and competence of personnel, higher requirements to production.

As an example we can describe promotion of medical equipment of "UOMZ" into German and Swiss markets. The device LED phototherapy lamp for newborns was sold successfully several years in the Russian market, in the CIS countries, Southeast Asia and the Middle East.

The medico-technical characteristics of this device considerably exceed the corresponding characteristics of lamp irradiators and does not yield to the Western European and American LED lamps. That is why in 2008 the enterprise has made attempt to enter with this device into the market of Western Europe.

The first step was certification of the Swiss daughter enterprise of "UOMZ" as PLM, than it was carried out the complex promotion actions – participation at the European exhibitions and medical congresses, product demonstration to potential consumers, numerous tests of the device in hospitals, several improvements of the device according to the consumers remarks.

Finally, the enterprise entered in German and Swiss markets with this medical device and by 2016 deliveries in these markets have made 2% of the total amount of export; secondly, sales in the Western European markets have strengthened image of the plant at consumers and, as a result, have led to increase in sales of medical production and in other markets. In 2008 sales into foreign markets have single character and are carried out by small parties, since 2011 there is an essential increase in geography of sales, emergence of new regions of sale. Since 2011 till 2016 the share of countries of Western Europe in the export of "UOMZ" increased from 1% to 3%. The share of deliveries to the countries of Southeast Asia grew up significantly (from 8% to 20%) and the countries of the Middle East - from 5% to 17%.

It can be concluded that OEM-PLM schemes and all other measures for stimulating of export have allowed "UOMZ" to launch the entry strategies in the markets of many foreign countries. The

countries of Southeast Asia and the Middle East have become the priority regions for the enterprise. The strong competition and a political environment don't allow an increase of the presence in countries of Western Europe significantly yet, but even small on volume, but regular deliveries of the Russian medical equipment to the high developed markets of Germany and Switzerland can be acknowledged like a considerable achievement.

4. Conclusion

The Russian producers are forced to adapt under requirements of the market, to provide process of continuous improvement and development of all systems of the enterprise, to use the effective schemes of advance of the goods, to provide a compliance of the goods to the norms and requirements of foreign countries under globalization and fast development of new technologies. In terms of standardization processes in the world, production of goods has many similar characteristics and close level of technical and qualitative parameters. Thus before the producer there is a task to allocate the product to attract the buyer. In the article a conclusion has been received that one of the ways of involvement of the consumers can be using of country brands. The opinion on the country brand depends on many factors: history of the state, scientific achievements, culture, image of trademarks and others. The strong image of the state defines positive perception of brands of the products and the companies coming from this country, positively influences the decision on purchase. Many enterprises with the negative COE try to decide this problem and to overcome a negative perception of the country brand.

In the article two schemes for expansion of export of industrial goods abroad are offered (especially in the developed countries of the world): cooperation with foreign producers of the equipment on the terms of screwdriver assembly or a subcontracting and the OEM-PLM system with the partner having positive COE. Only competition with stronger player will allow the Russian industrial enterprises to improve goods quality and customer service, to fix in the foreign markets and to change the stereotype of a "cheap" brand to "high-quality and expensive".

The offered schemes can be used also by any other companies from the countries with negative perception of the country brand at the foreign consumers and low level of export competitiveness. These tools can afford to increase the export potential of the enterprise and to remain the active player during an era of the coming fourth industrial revolution.

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