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Justification of Expediency of Application of Industrial Cosourcing at Industrial Enterprises

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Abstract: In the research, the essence of the industrial cosourcing, its role in management of the industrial enterprise is outlined. The "make or buy decision" is improved with taking into account a cosourcing, the new decision "make and/or buy decision" is defined. The technique of determination of expediency of application of the industrial cosourcing at the industrial enterprise is developed and offered.

Key words: Industrial cosourcing, industrial outsourcing, industrial insourcing, make or buy, matrix of outsourcing

INTRODUCTION

Today the concept "sourcing" is rather fashionable instrument of management in particular, a large number of the bright and colorful presentations presented various consulting and the auditor companies, describe this phenomenon as the instrument of effective management of the enterprise, imposing its importance and expediency. However, despite some similarity to an advertising product, a sourcing really is modern and demanded instruments of management which, certainly, represents scientific interest for economists and heads of divisions of the industrial enterprises.

Each model of a sourcing is available the advantages both the appointment and efficiency of introduction of this or that model directly depends on expediency of the chosen strategy. The industrial cosourcing isn't an exception.

The purpose of this study is development of a technique of an assessment of expediency of application of the industrial cosourcing at the industrial enterprises.

MATERIALS AND METHODS

The essence of the industrial cosourcing: From all variety existing on today's day of models of a sourcing, it is always possible to allocate two models which are each other the direct opposite. In particular, it is about outsourcing and insourcing.

If outsourcing means transfer by the enterprise on the basis of the contract of concrete internal function or business process to the third-party supplier insourcing, being its direct opposite-performance of a certain function or business process in the organization that is own forces. Schematically the models can be presented in Fig. 1.

Despite the direct opposite of these models of a sourcing, there is a model which is a product of integration of outsourcing and insourcing. The model a cosourcing means association of resources of the enterprise with resources of the third-party supplier for the solution of the general task. The cosourcing it is possible to present in the form charts euler-venn (Fig. 2).

From Euler-Venn's chart it is visible that production of a component A is transferred to outsourcing, production of a component B remained in the enterprise and in production of a component C are engaged as well as the enterprise and the outsourcer that is the cosourcing is applied.

Also as well as in a case with outsourcing, Russian-speaking terminology of a cosourcing isn't developed yet, therefore by analogy with designations of participants of the outsourcing relations when the terms "outsourcer" (supplier) and "outsourcee" (customer) are used (Kotlyarov, 2011) is offered to use the terms "cosourcer" and "cosourcee".

As well as any other model of a sourcing, a cosourcing can be classified by various criteria. In particular, we will consider the following types of the industrial cosourcing which will be used in the technique offered (Fig. 3). From Fig. 3, it is visible that three main types of a cosourcing are allocated:

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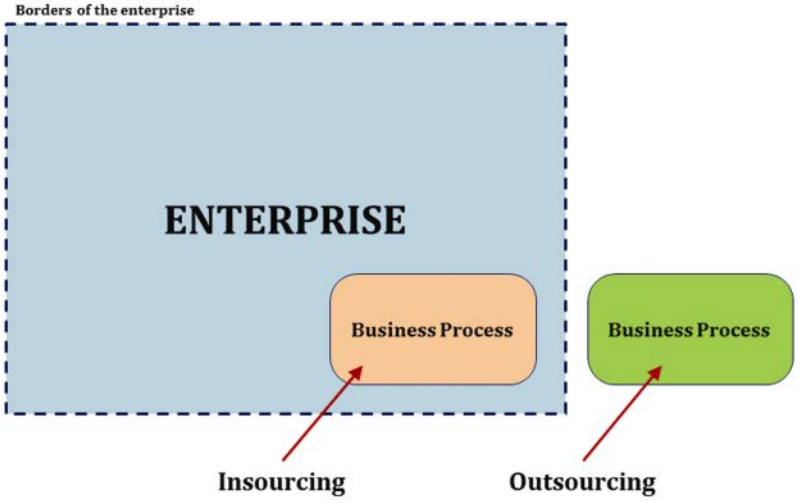

Fig. 1: Outsourcing and insourcing

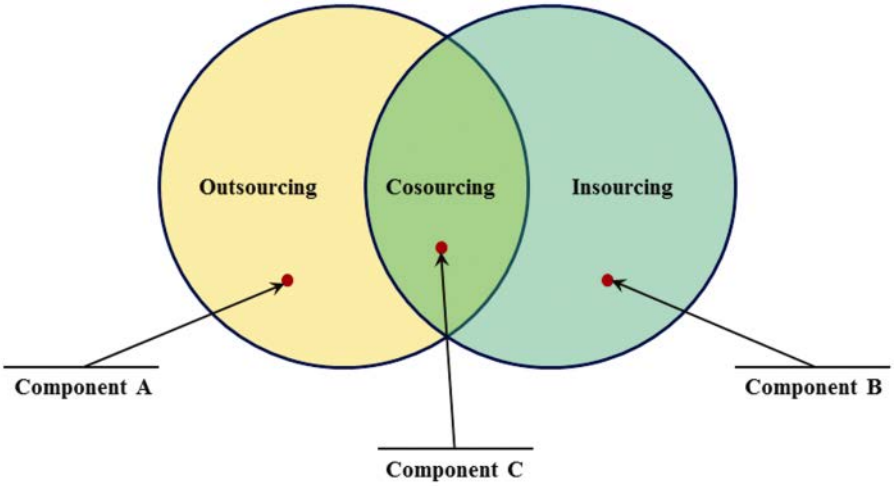

Fig. 2: Outsourcing, insourcing and cosourcing

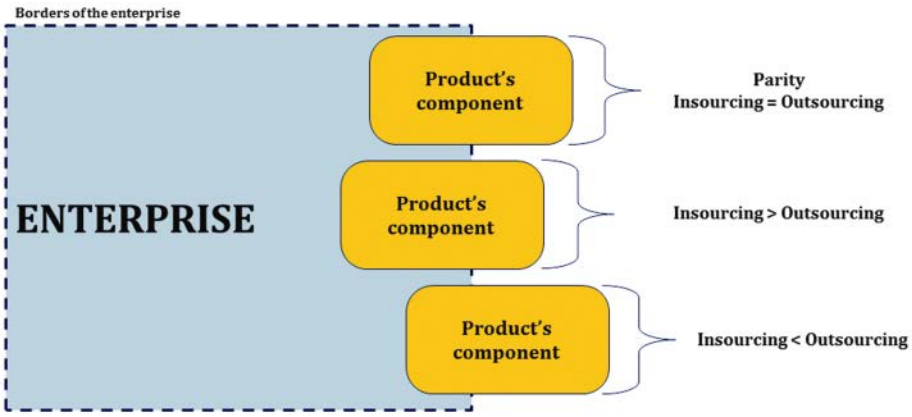

Fig. 3: Types of industrial cosourcing

Table 1: Types of the industrial cosourcing

Ratio of volumes	Types of the industrial cosourcing
VS/VP = 1	Cosourcing with shares of insourcing and outsourcing on parity bases
VS/VP>1	Cosourcing with domination of insourcing
VS/VP<1	Cosourcing with domination of outsourcing

VS the volume of own production of a component during the set time period; VP the volume of purchases of a component at the supplier during the set time period

- Cosourcing with shares of insourcing and outsourcing on parity bases
- Cosourcing with domination of insourcing
- Cosourcing with domination of outsourcing

Application of this or that type of a cosourcing defines extent of influence of the enterprise on production of a component.

Also as well as in a case with industrial outsourcing, can be transferred production of a component to a cosourcing entirely (in the concept of outsourcing this look is called as outsourcing of an entrance (exit) of process (Makhmutov and Murtazin, 2014) or grocery outsourcing) or the process/function connected with production of a component. For example, the customer isn't able to execute internal function due to the lack of necessary competences and the supplier has this unique expert knowledge. Having combined efforts, they solve joint problems of production of a component (Clinton and Vecchio, 2002).

Also within a cosourcing customers and suppliers can divide resources. For example, the supplier can divide the staff or lease to the customer specialized tools or the equipment (Clinton and Vecchio, 2002).

In case of transfer to a cosourcing of a full cycle of production of a component an insourcing ratio to outsourcing in cosourcing is defined as a ratio between volumes of own production of a component and purchases at the supplier during the set period of time (Table 1).

In case the supplier within the industrial cosourcing carries out a certain process or the function connected with production of a component and/or leases to the customer the specialized equipment, the insourcing ratio to outsourcing in cosourcing is defined as a ratio between costs of own production of a component and of payment to the supplier for the executed process and/or the provided equipment on products unit.

Make or buy decision: Weighing possibilities of development of own production with opportunities of application of industrial outsourcing, the enterprises closely approach the solution of a task "make or buy".

The decision to make but not to buy, means application of industrial insourcing. The following factors can push to adoption of this decision:

- Lack of dependence on the supplier
- Preservation of control over own resources
- Economy on transportation of components
- Preservation of technological secrets
- Absence of the corresponding suppliers in the market and other factors

It is also fair to note that realization of key competences happens within insourcing. In particular, for the majority of machine-building enterprises Research and Developmental works (R&D) and assembly of a ready-made product are one of key competences. For example, the Russian motorcycle plant JSC "UMZ" having allocated non-core assets in outsourcing, concentrated on key competences: R&D, production of bodies, welding, painting, machining and also assembly of a ready-made product (Belousov, 2013).

The decision to buy, but not to make, means application of industrial outsourcing and this is the main reasons for transition of the enterprises to this model of a sourcing (Fig. 4) (Isavnin and Farkhoutdinov, 2012).

The desire to raise competitiveness of products is very common cause of application of industrial outsourcing by the Russian industrial enterprises. In this case, outsourcing can help to improve quality of production and its consumer properties by means of application of innovations. It is possible to bring modernization of a model range of cars by the companies into qualities of an example JSC KAMAZ and "GAZ Group" by means of application of components from the leading global manufacturers (Isavnin and Farkhoutdinov, 2012).

Also to decision-making to buy, but not to make, such factors as decrease in risks due to collective investments (Romanova and Studenikina, 2010), big flexibility in a choice of possible sources and products substitutes and other factors can push.

As for the industrial cosourcing, application of this model of a sourcing means decision-making both to make and to buy. The following factors can push to adoption of this decision:

- Satisfaction of the excess demand having temporary or seasonal nature
- Secure on a case of breakage of the equipment and other facts

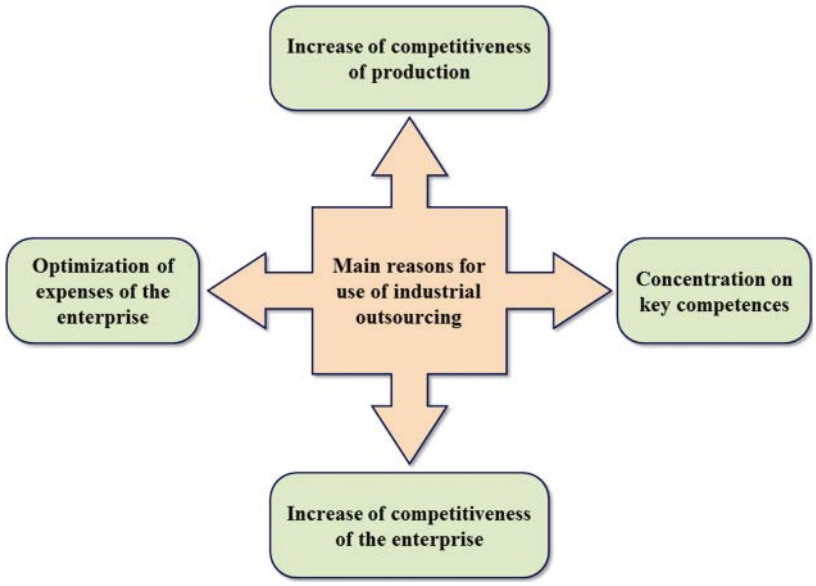

Fig. 4: Reasons of use of industrial outsourcing

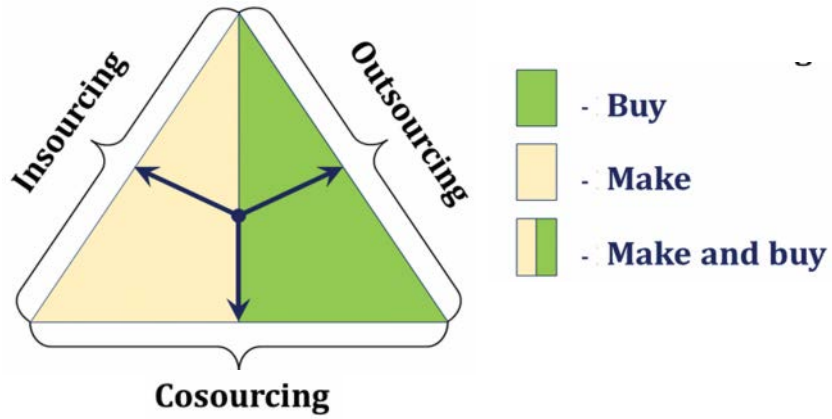

Fig. 5: Make and/or buy decision

Additional charge of own capacities by means of the translation of part of operations from outsourcing on the enterprise, for example in the period of an economic crisis, is also one of the reasons of application of the industrial cosourcing. For example, the deputy CEO of the consulting company "ALT" Dmitry Sirotkin notes that during increase of crisis (2008-2009) the demand of outsourcing services is reduced and at stabilization of a situation and the beginning of recovery from the crisis demand for them will increase. It quotes the CEO of the JSC "RIAT company" V.V. Ponomarev: "In the conditions of an economic crisis of JSC "RIAT" continues to use widely outsourcing by production of end products but triple falling of volumes of orders from the main buyers of our production forced the company to reconsider the developed system of the cooperated communications. Part of the orders which are earlier placed with the third-party companies we return on the enterprise for the purpose of the greatest possible loading of own capacities. Of course, thus, we estimate previously economic efficiency of these decisions and we revive "subsistence economy" only at the guaranteed economic result! In process of crisis overcoming we will return to earlier mastered level of outsourcing and development only of key competences of the company".

It is obvious that it is necessary to improve a task "make or buy" taking into account a cosourcing and to define a new task "make and/or buy" (Fig. 5).

Transition to outsourcing can be considered expedient if thus, the enterprise gains certain competitive advantages and achieves goals. The similar situation is and with other models of a sourcing, such as insourcing and a cosourcing. Reasonable combination of outsourcing insourcing and a cosourcing where management of them is constructed on in advance defined accurate principles and identification of exact borders of each of these models are pledge of effective application of strategy of a sourcing at the enterprise. Therefore at the solution of a task "make and/or buy" the management of the company needs to weigh carefully all pros and cons and also to consider experience of application of this or that model by other enterprises including competitors.

Matrix of outsourcing: The most part of the techniques of an assessment of expediency of application of outsourcing and insourcing existing today is a kind of matrix approach as "matrix of outsourcing" is the most widespread and demanded method. Generally, matrixes of outsourcing are intended for the solution of a task "make or buy", they don't stipulate a situation when it is expedient to use a cosourcing. In this regard, there is an actual need for identification of similar situations.

However in scientific literature, nevertheless, the matrixes of outsourcing meaning application of a cosourcing or directly pointing to expediency of this model of a sourcing meet. We will consider some of them. Clinton B.D. and S.C. Del Vecchio, supplier arrangements map.

In spite of the fact that Clinton and Vecchio (2002) in the study under the name "cosourcing in manufacturing" don't use the concept "matrix of outsourcing", the "supplier arrangements map" offered by them is under construction to similarly matrix approach by means of use of the cartesian system of coordinates. Therefore, the approach offered by them is analyzed by us as one of variations of matrixes of outsourcing.

The card of agreements with Clinton and Vecchio (2002)'s supplier is based on use of the following factors at decision-making on use of outsourcing and a cosourcing: proximity of the supplier and risk of loss of control. According to this approach, application of the industrial cosourcing expediently in a case when the maximum proximity of the supplier and the minimum risk of loss of control over process are necessary for the enterprise.

In our opinion, at a similar situation when the customer is afraid to lose control over production of a component and wishes geographical proximity of the outsourcer, it is more expedient to use internal outsourcing that is to remove own division in 100% subsidiary and to transfer it a full cycle of production of a component.

Also it would be desirable to note that this technique doesn't consider economic feasibility of application of outsourcing and a cosourcing. In our opinion, transfer of production of this or that component to the third-party supplier always has to be followed by justification of economic effect or efficiency of similar action. It is an important factor for the Russian production.

Matrix of outsourcing of D. Khlebnikov: The matrix of outsourcing of D. Khlebnikov is based on use of the following factors at decision-making on use of outsourcing and insourcing: strategic importance and quality of competences/works/results in comparison with the market.

At a situation when the performed work has the high strategic importance, but the worst quality of realization in comparison with the market, the researchers of a technique suggests "to study and cooperate with the leader of branch". This cooperation can mean including application of a cosourcing. However, the author doesn't mention a cosourcing in the offered technique, therefore, this approach doesn't give the answer to a question how to conduct cooperation to create joint venture or to use a cosourcing?

In this regard, development of a technique of an assessment of expediency of application of the industrial cosourcing at the industrial enterprises is represented especially actual.

RESULTS AND DISCUSSION

Technique of an assessment of expediency of the industrial cosourcing: This technique is based on a technique of an assessment of expediency of application of restructuring industrial outsourcing, developed by Isavnin A.G. and Farkhoutdinov I.I.

The symmetric matrix of expediency of industrial outsourcing of dimension 2×2 $(m_{ij})_{i=1,\,j=1}^{2,\,2}$ is based on use of the following factors at adoption of the administrative decision on use of outsourcing and insourcing: strategic importance and profitability (Fig. 6) (Isavnin and Farkhoutdinov, 2012).

From Fig. 6, it is visible that the components belonging to matrix element of m_{21} have the low strategic importance and low profitability therefore, it is offered to remove production of these components in outsourcing. And the components belonging to an element of m_{12} on the contrary have the high strategic importance and high profitability therefore, it is more expedient to leave production of these components in the enterprise.

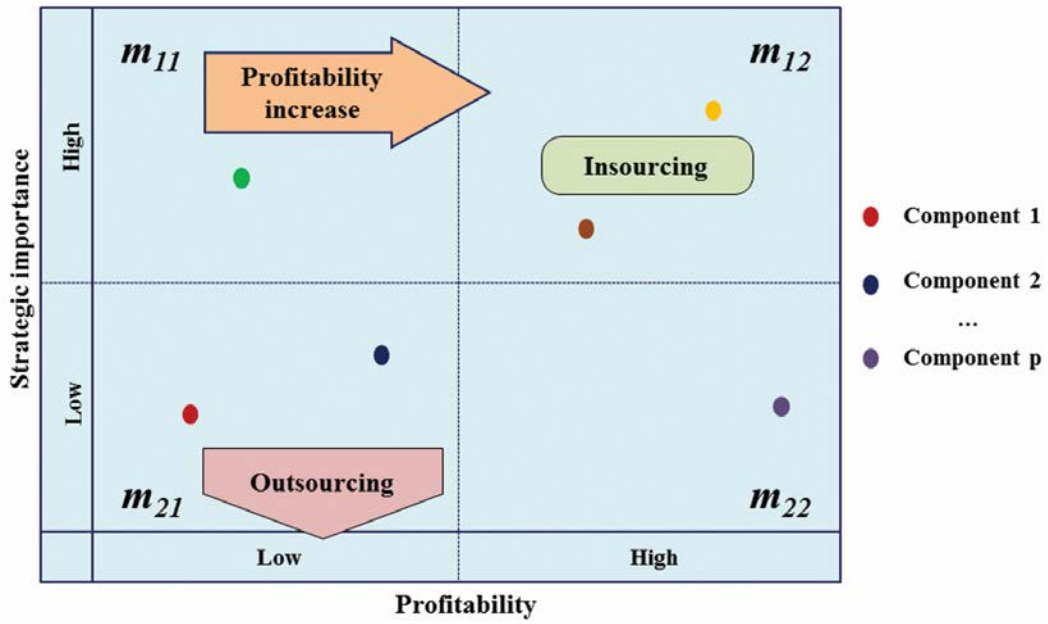

Fig. 6: Matrix of expendiency of outsourcing of Isavnin and Farkhoutdinov

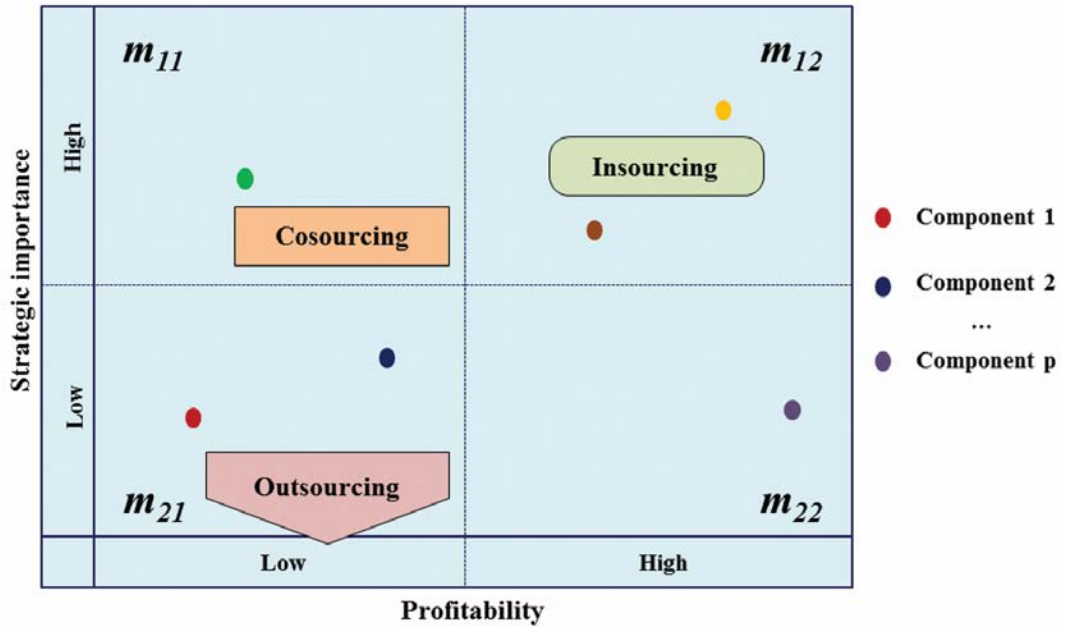

Fig. 7: Matrix of expendiency of outsourcing, insourcing and cosourcing

For determination of expediency of application of the industrial cosourcing the matrix presented in Fig. 6 as follows was finished (Fig. 7).

From Fig. 7, it is visible that the components belonging to matrix element of m_{11} have the high strategic importance and low profitability. It is obvious that the enterprise has to take care of increase of profitability of these components that is realize a number of the actions directed on the translation of components from an element of m_{11} in an element of m_{12}.

However, some resources are necessary for the enterprise for realization of these actions for example,

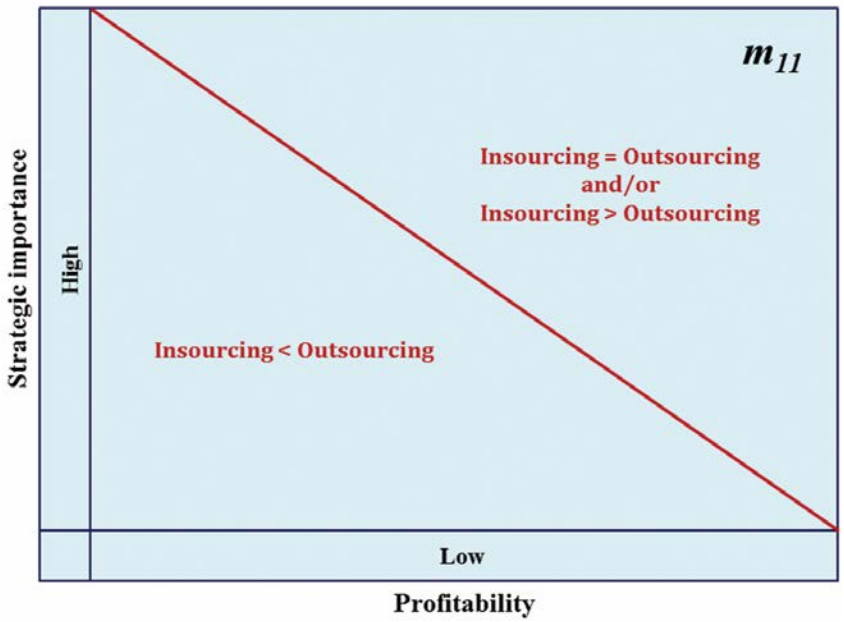

Fig. 8: Matrix's element of m_{11}

investments or the specific equipment and also competences which can be absent at the enterprise. In our opinion, the tool allowing to realize more successfully the actions for increase of profitability of components belonging to an element of m_{11} is the industrial cosourcing.

In what advantage of the industrial cosourcing? First, if the enterprise is able to realize actions independently, application of a cosourcing will allow to reduce on the one hand, production of low-profitable components that will improve a financial condition of the customer and with another will partially keep production these components as they are strategically significant for the enterprise. In this case it is necessary to pay attention to that the released capacities didn't incur additional costs for the enterprise in connection with their contents. Capacities have to be either "are frozen" or loaded by production of other highly profitable components.

Secondly, if at the enterprise there are no necessary competences or the specific equipment, application of a cosourcing will allow to borrow missing resources from a cosourcer. And, the cosourcer can gradually transfer these resources to a cosourcee.

In the first and in the second case application of the industrial cosourcing is the makeshift which however is periodically arising so how continuous monitoring of a condition of components on the offered matrix is pledge of effective production.

The area of an element of m_{11} is rather extensive therefore, it is expedient to divide it on the main thing of a diagonal and to differentiate application of each type of the industrial cosourcing (Fig. 8).

In particular, for the components belonging to area is higher than the main diagonal of an element of m_{11}, it is offered to apply the following types of the industrial cosourcing: a cosourcing with shares of insourcing and outsourcing on parity bases and/or a cosourcing with domination of model of insourcing. And for the components belonging to area is lower than the main diagonal of an element of m_{11} a cosourcing with domination of model of outsourcing.

This approach allows to master more evenly and in proportion the actions directed on increase of profitability of the components belonging to an element of m_{11} as much as possible benefiting from cooperation with cosourcer at rather minimum loss of control over production of these components.

CONCLUSION

One of the main criteria of successful application of strategy of a sourcing at the enterprise is competent definition of degree of expediency of use of each model of a sourcing. In particular, there is a need for the reliable technique allowing to solve a problem "make and/or buy". After all reasonable combination of insourcing, outsourcing and a cosourcing where management of them is constructed on in advance defined accurate principles and identification of exact borders of these models are pledge of effective application of strategy of a sourcing at the industrial enterprises.

The offered technique of an assessment of expediency of application of the industrial cosourcing is intended for the solution of a task "make and/or buy". In

spite of the fact that the technique doesn't cover all variety of opportunities for application of a cosourcing, it allows to define some important situations at which economically and it is strategically expedient to attract resources and competences of a cosourcer.

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