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MANAGEMENT OF OUTSOURCING RISKS IN THE PROCESS OF ENTERPRISE FINANCIAL ACTIVITY

Abstract. The article outlines the essence of outsourcing and outsourcing activity of manufacturing enterprises. Major internal and external risks, that arise when transferring functions to the outsourcer, are defined and characterized. In the article was developed a method of expected costs distribution between the enterprise–customer and outsourcer while managing risks of outsourcing activity. The method was tested on real data of five Ukrainian enterprises. Also the risk management process of outsourcing during industrial and business activity of enterprises was identify. Based on the expected losses from the transfer of the part of internal function to an outside organization the definition of savings from outsourcing activity that characterizes the amount of cost reduction of the enterprise in the case of outsourcing was porposed.

Keywords: outsourcing, outsourcing activity, internal outsourcing risks, external outsourcing risks, threshold level of costs.

JEL Classification: G32, L00, M41

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УПРАВЛІННЯ РИЗИКАМИ АУТСОРСИНГУ В ПРОЦЕСІ ФІНАНСОВОЇ ДІЯТЕЛЬНОСТІ ПІДПРИЄМСТВА

Анотація. У статті визначено сутність аутсорсингу та аутсорсингової діяльності виробничих підприємств. Визначено і охарактеризовано основні внутрішні та зовнішні ризики, які виникають при передачі функції на виконання аутсорсерові. Розроблено метод розподілу сподіваних витрат між підприємством–замовником і аутсорсером, при управлінні ризиками аутсорсингової діяльності задля покращення фінансових результатів діяльності підприємства.

Ключові слова: аутсорсинг, аутсорсингова діяльність, внутрішні аутсорсингові ризики, зовнішні аутсорсингові ризики, пороговий рівень витрат.

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УПРАВЛЕНИЯ РИСКАМИ АУТСОРСИНГА В ПРОЦЕССЕ ФИНАНСОВОЙ ДЕЯТЕЛЬНОСТИ ПРЕДПРИЯТИЯ

Аннотация. В статье определена сущность аутсорсинга и аутсорсинговой деятельности производственных предприятий. Определены и охарактеризованы основные внутренние и внешние риски, которые возникают при передаче функции на выполнение аутсорсеру. Разработан метод распределения ожидаемых расходов между предприятием–заказчиком и аутсорсером, при управлении рисками аутсорсинговой деятельности.

Ключевые слова: аутсорсинг, аутсорсинговая деятельность, внутренние аутсорсинговые риски, внешние аутсорсинговые риски, пороговый уровень расходов.

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Introduction. The improvement of domestic manufacturing enterprises activity is essential to ensure the economic development of Ukraine in general, as such enterprises provide the output and a great variety of industries and population are the consumers of that output. The importance of the usage of the innovative activity management tools by the domestic manufacturing enterprises is stipulated by the absence of new technologies and knowledge, and outdated ideas about the organization of production process. Outsourcing is the example of such instrument in the current economic environment. Experience of outsourcing usage by the world companies confirms its high efficiency, since substantiated transfer of functions to the outsourcer stipulates the improvement of the performance quality, costs reduction, speeding of the production and operating cycles and thus stipulates the increase of the profits and competitiveness of the enterprise. Given the fact that the outsourcing implementation is also associated with the emergence of a number of risks, the decision of outsourcing should be weighted and substantiated.

Analysis of studies and publications. Significant contribution to the theoretical and practical foundations of outsourcing was made by: O.Bilous, A. Ysavnyn, L. Willcocks, J Zelinski, L. Lypych, S. Garkusha, C. Warren and other. The scholars reveal the essence of outsourcing describe the impact of outsourcing on the industrial and economic activities of the enterprises. The classification of the main types and forms of outsourcing is developed. Partially the main risks are defined, that the enterprise–customer could come across in case of transfer of functions to the outsourcer. Therefore, it is advisable to use an integrated approach to outsourcing risk management taking into account the peculiarities of their occurrence and the impact on the enterprise–customer.

The presentation of the main results. Outsourcing implementation by the enterprise–customer is made by its outsourcing activity related to the planning and implementation of outsourcing and occurs in the process of collaboration with the outsourcer in order to achieve this goal. An important element of effective management of the outsourcing implementation should be the identification of the main risks of outsourcing activity for timely leveling their impact.

By the place of formation the risks of the outsourcing activity of the manufacturing enterprises is advisable to divide into two main groups: internal relative to the enterprise–customer and external. Internal are the risks that may arise within the enterprise after transfer of functions to

the outsourcer. External risks of outsourcing activity are those related to the outsourcer activity. Among all risks of outsourcing there main three: the risk of untimely performance of the functions by the outsourcer, the risk of poor quality of services provided by the outsourcer and the risk of under fulfillment of the order by the outsourcer [1,p.95]. Thus, we can conclude that in most cases the enterprise–customer risks are of external origin, which cause the necessity of responsible outsourcer selection and monitoring its activities for the duration of the contract. Equally important is the process of assessing the impact of these risks on the results of industrial and economic activity of the enterprise–customer and finding ways to neutralize those risks.

Formation of the system of outsourcing risks identification and management, is one of the main challenges in outsourcing implementation, which stipulates the need for effective management decisions in the process of analysis, evaluation and regulation of such risk s in order to minimize expected losses [2, p: 809].

The expected amount of losses of the enterprise–customer from arising of outsourcing risks (R) can be defined as follows:

$$R = \sum_{i=1}^n (P_i * V_i) + \sum_{k=1}^n Z_k, \quad (1)$$

where P_i – the probability of the i -th internal risk at the enterprise–customer activity in case of outsourcing, V_i – the level of costs that may be subject to the enterprise upon the occurrence of the i -th internal risk, uah, Z_k – the balance of uncompensated costs by k -th outsourcer due to the arising of external risks, uah, n – the number of internal outsourcing risks that may arise in case of transfer of functions to the outsourcer, units, k – the number of outsourcers that are engaged in the cooperation.

One of the most important tasks for the enterprise–customer during outsourcing activity risks management is to avoid or minimize residue of the costs that were not compensated by the outsourcer [3,p.245]. Therefore it is necessary to use the method of expected costs distribution between the enterprise–customer and the outsourcer in case of arising of main external risks of cooperation. Thus the risk of untimely fulfillment of the task by the outsourcer can be estimated by the parameter τ (τ – time of the order delay), the risk of poor quality of services provided by the outsourcer can be estimated by the parameter s (s – the percentage of the defect) and the risk of order underperformance – by the parameter v (v – the percentage of non–fulfilment work).

The level of risk of financial and property losses of the enterprise–customer depends on the percentage of the defect (parameter s the value of which ranges from 0 to 1) at order execution by the outsourcer. It is necessary to determine the distribution law for the purpose of calculating the expected value of the amount of property and financial losses in case of the corresponding risk, as the specific value of the parameter s is unknown before entering into the contract. For the purpose of selecting the optimal distribution law it is necessary to take into account the basic properties of risk parameters s , namely its change in the range from 0 to 1, and the probability of the risk decreases with the increase in the parameter value. The law of exponential distribution for continuous variables is one of the typical distribution laws that satisfy the provided properties [4, p.125]. Because the value of the parameter in accordance with this law is in the range $[0, \infty]$, and the value of s varies from 0 to 1, so the chosen law was modified and is distributed in the interval $[0, 1]$:

$$U(\lambda; s) = \frac{\lambda}{1 - e^{-\lambda} - \lambda e^{-\lambda}} (e^{-\lambda s} - e^{-\lambda}) \quad (2)$$

where λ – parameter, the value of which depends on the likelihood of the risk in the process of cooperation with the outsourcer (varies from $-\infty$ to ∞ and is determined by an expert method).

The distribution parameter λ determines the riskiness of collaboration of manufacturing enterprise with a particular outsourcer. The higher the value of the parameter λ , the smaller risk probability. The level of outsourcer responsibility according to the transferred functions (the value of the

parameter λ) was defined by the expert method based on qualitative and quantitative characteristics of outsourcer activity. The distribution law of risk parameters s is known as well. So, the following formula is proposed in order to calculate the value of expected property and financial losses:

- in case of the linear relationship between the amount of costs and the value of risk

$$F = M \int_0^1 \lambda \times U(\lambda; s) ds; \quad (3)$$

- in the case of non-linear relationship between the amount of costs and the value of risk

$$F = M \int_0^1 \varphi(s) \times U(\lambda; s) ds \quad (4)$$

where F – the volume of expected property and financial losses, uah, M – the amount of maximum losses of the enterprise–customer upon the risk arising, uah; $\varphi(s)$ – function (model), which describes the non-linear relationship between the value of the property and financial losses and the percentage of the defect of the transferred functions fulfillment; $U(\lambda; s)$ – modified exponential distribution law.

Note that the enterprise–customer besides property and financial costs could have moral damages. We have introduced function $\mu(s)$ to calculate the full expected (property, financial and moral) costs (P) in the formula (4), which models non-linear rise of moral costs over property and financial losses:

$$P = M \int_0^1 \varphi(s) \times \mu(s) \times U(\lambda; s) ds. \quad (5)$$

According to the outsourcing agreement the share of property and financial costs of the enterprise–customer should be $(1-\rho)F$ and the share of the outsourcer should be ρF , where the coefficient ρ is unknown and need to be determined before the conclusion of the contract in order to minimize the responsibility of the enterprise–customer. Once the outsourcer has paid compensation of moral costs in the amount of $P-F$ and its share of the property and financial costs ρF , the balance of uncompensated costs of the enterprise–customer is proposed to identify by the following formula:

$$Z = (1-\rho) \times F - ((P-F) + \rho \times F) = 2 \times F - P - 2 \times \rho \times F \quad (6)$$

In some value of ρ the balance of uncompensated costs can be equal to zero. So the formula for calculating ρ will look like this:

$$\rho = \frac{2 \times F - P}{2 \times F} \quad (7)$$

So, if at conclusion of the agreement would be decided that the share of the property and financial costs of the enterprise–customer is $(1-\rho)F$, and the value of ρ would be calculated according to the proposed formula (7), so in such case there will not be a balance of expected costs of the enterprise–customer from the outsourcing risk arising. In other words, the costs of risk arising will be fully compensated by the outsourcer. Therefore the amount $(1-\rho)F$, where ρ is calculated using formula (7), can be regarded as a threshold level of losses at which the enterprise–customer does not experience financial and property losses.

The process of calculating the value of property, financial and moral losses, and developed modified exponential distribution law could be used for each of the main external risks of the cooperation among enterprise–customer and the outsourcer.

The distribution of expected costs was made for engineering enterprises based on obtained information on the implementation of outsourcing (see table 2).

Based on the calculations provided in table 2 we can conclude that under conditions of Ukrainian economy the value of the coefficient ρ , is in the range 0,28–0,38. Given that, the determined limits could be used in the allocation of expected costs and for other manufacturing enterprises, which have plans to do outsourcing.

Table 2

Distribution of expected costs caused by risks of outsourcing activity among the enterprise–customer and outsourcer*

№	Enterprise	Type of functions transferred to outsourcing	Types of risk	The value of expected costs, uah	The value of the coefficient ρ	The threshold level of costs, uah
1.	JSC «Lviv Locomotive Repair Plant»	Painting of electric locomotive by special two–phase paint	The risk of receiving substandard services	Property and financial costs: 133920.3 Full costs: 167398.1	0.375	83699.1
2.	JV LLC «Sferos–Electron»	Production of cable braids for the heaters	The risk of receiving substandard services	Property and financial costs: 92221.3 Full costs: 122631.4	0.335	61315.7
		The process of galvanic covering of the products	The risk of delay of function fulfillment	Property and financial costs: 48391.8 Full costs: 59077.8	0.389	29538.9
3.	LLC «LEONI Wiring Systems UA (GmbH)»	The process of twisting the cable networks from semi–manufactures	The risk of receiving substandard services	Property and financial costs: 12743.1 Full costs: 18113.4	0.289	9056.7
4.	LLC «Ukrainian drilling equipment»	Stockpiling of details by the foundry shop	The risk of receiving substandard services	Property and financial costs: 11150.7 Full costs: 15067.8	0.324	7533.8
		Sales functions	Risk of order underfulfillment	Property and financial costs: 7,480.4 Full costs: 9,657.3	0.354	4828.6
5.	LLC «ODV–Elektryk»	The process of twisting the cable networks from semi–manufactures	The risk of receiving substandard services	Property and financial costs: 11150,7 Full costs: 15067.8	0.324	7533.9

*Calculated by the authors

However, as the practice of outsourcing application shows, the enterprise–customer can't always conclude the outsourcing contract on all conditions that are profitable for it [5]. Therefore it is also necessary to determine the maximum level of risk which is determined by calculating the maximum possible costs, which the enterprise can accept without damage to its industrial and economic activity (G). The sequence of outsourcing activity risk management is shown in Fig. 1.

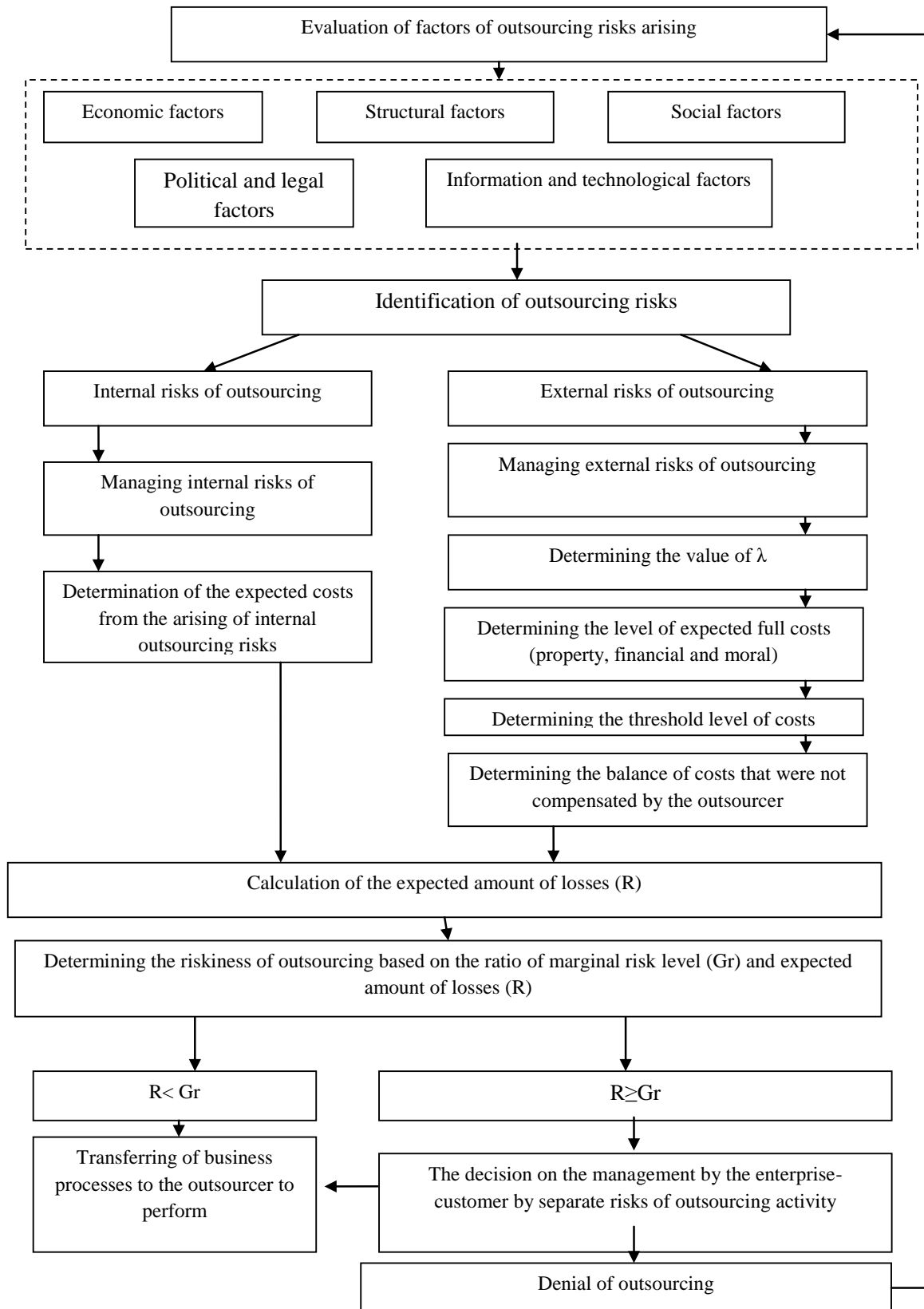


Fig 1. The process of the management of outsourcing activity risks by the enterprise-customer, developed by the authors based on [6, p.152; 7, p.70; 8, p. 91; 9]

During the survey nearly 30% of the respondents have noted about the arising of internal outsourcing risks. So, the assessment of the appropriateness of the functions transfer to the outsourcer and analyzing the strengths and weaknesses of the enterprise–customer are important. Therefore, in the analysis of economic effectiveness of outsourcing activity, it is necessary to calculate the savings of manufacturing enterprise in case of outsourcing:

$$Ve = \sum_{i=1}^n Vb_i - \sum_{i=1}^n Vf_i - Vvz - R \quad (8)$$

where Ve – saving caused by outsourcing activity, uah, Vb_i – costs on implementation of i -th function before outsourcing application, uah, Vf_i – costs on implementation of i -th function by the outsourcer, uah, Vvz – costs on measures for implementation of outsourcing, uah, R – the expected amount of losses, uah.

The implementation of outsourcing activity is justified from expenditure perspective if $Ve > 0$. The implementation of outsourcing activity is not justified from the expenditure point of view if $Ve < 0$. There will not be savings from the implementation of outsourcing provided that $Ve = 0$.

In the implementation of outsourcing activity the costs level of the enterprise–customer can't decrease, but the financial results of its business will be improved through the revenue growth as a result of reducing the duration of the operating cycle, usage of released parts of the assets, improving product quality [10, p.25]. Therefore, it is also reasonable to compare growth rates of the performance results of the enterprise–customer such as revenue, costs and profit while determining the effectiveness of outsourcing when there is no expenditure savings.

Conclusions. The developed method of expected costs distribution among the enterprise–customer and the outsourcer requires from the managers to develop and implement a number of management decisions depending on the type of outsourcing risk and functions that are transferred to an outside organization. Determining the threshold level of costs will minimize or avoid the costs of the enterprise–customer related to the impact of outsourcing external risks, that will increase the efficiency of outsourcing as a tool for activity management of manufacturing enterprises.

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