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## MODELING OF INNOVATIVE DEVELOPMENT OF ADMINISTRATION OF OUTSOURCING ACTIVITIES OF IT-MARKET ENTERPRISES

**Abstract.** Outsourcing provides IT companies with a number of benefits and improves the financial and economic performance of their operations. The outsourcing market in Ukraine is developing fast, many types of outsourcing are used in various types of economic activity. Implementation of outsourcing as one of the most popular business models necessitates constant and well-coordinated cooperation with other business entities. The need for outsourcing research and modeling of its administration methods today is acute and corresponds to the directions of the latest scientific research and practical applications, which substantiates the relevance and practical feasibility of this study.

In this work scientific-methodical, normative-legal sources concerning administration of outsourcing activity are investigated, the state of administration of outsourcing activity of IT enterprises is studied and problems, which arise in the administration of outsourcing activity, are analyzed. The ways of their elimination in order to improve the economic indicators of economic activity of IT enterprises and ways of modeling of their innovation development are proposed.

Taking into account the results obtained in the work, we note the rapid innovation development of the global outsourcing market over the last decades. We consider it is expedient to model the outsourcing market in Ukraine, which develops rapidly. Since outsourcing provides numerous benefits to the company and positively affects the economic performance of its activities, this proves the feasibility of its introduction into the business activities of enterprises. Having numerous varieties, now outsourcing has been distributed in virtually all types of economic activity of enterprises.

**Key words:** modeling, innovation development, outsourcing, administration, IT entrepreneurship, IT-market.

### **The problem statement**

Outsourcing provides IT companies with a number of benefits and improves the financial and economic performance of their operations. Over the past decades, the concept of an outsourcing market has emerged within the national economies of the states, which are responsible for the modern globalization processes of the development of national economies, where the international division of labor is intensified every year, and the specialization of countries or individual regions and companies is formed in individual business processes. The outsourcing market in Ukraine is developing fast, many types of outsourcing are used in various types of economic activity. In order to ensure their viability companies try to optimize their activities by reducing the functions performed. Implementation of outsourcing as one of the most popular business models necessitates constant and well-coordinated cooperation with other business entities. The need for outsourcing research and modeling of its administration methods today is acute and corresponds to the directions of the latest scientific research and practical applications, which substantiates the relevance and practical feasibility of this study.

### **An analysis of recent research and publications**

The following domestic and foreign scholars worked on the study of outsourcing activities in terms of its implementation, preferences and evaluation: Abolhasan F. [1], Bublyk M. I.[2], Grebeshkova O. M. [3], Heywood J. B. [4], Ilien-

ko O. V., [5], Matviy I. E. [6], Moroz N. K. [5], Prokopenko A.C. [7], Stelmakh O. Yu. [3], Tsarenko O.V. [7], Zavodovska I. I. [8], Zorii O.M. [9] and others. However, the issue of modeling the innovative development of outsourcing in Ukraine and the problems of its practical application at enterprises need further research.

#### **Previously unsettled problem constituent**

At the same time, today the implementation of outsourcing operations modeling is still an unresolved issue, their mechanism involves interaction with the external environment and aimed at the effective functioning and development of both enterprises and the entire national (even global) economy.

#### **Purpose and objectives**

In order to find ways of modeling the innovative development of the administration processes of outsourcing activity of IT enterprises, various outsourcing problems and ways of improving its administration by IT enterprises were investigated. The tasks in achieving this goal were as follows: 1) to analyze scientific and methodical sources on the issues of administration of outsourcing activities; 2) study existing Ukrainian and international legislative and regulatory frameworks regarding the features of outsourcing activities; 3) analyze possible alternatives to improve the administration of outsourcing activities of IT enterprises; 4) to propose ways of modeling the innovative development of administration of outsourcing activity to substantiate expediency of implementation of the developed measures in the practice of IT enterprises.

#### **The main material of the research and the results obtained**

The decision on the necessity of introducing outsourcing processes into the economic activity of the enterprise is accompanied by the choice of the type of cooperation and the model of its implementation. Usually, enterprises develop their own forms and models of implementation of outsourcing. Tsarenko O.V. and Prokopenko A.C. [7] investigated the problems of outsourcing development at Ukrainian enterprises, substantiated approaches to outsourcing efficiency that take into account the risk reduction method and the creation of recovery processes by modeling the optimal structure of business construction. Zorie O.M. con-

siders in [9] approaches to the definition of the concept of "outsourcing", the main of which are: functional-oriented, cooperative, managerial and instrumental. Among the types of outsourcing the main are IT outsourcing, business projects outsourcing, manufacturing outsourcing and outsourcing in the service sector.

In work [6] Matviy I. Ye. considers ways of developing IT outsourcing (outsourcing of information technologies) in Ukraine, where a company that is a specialist in a certain type of business gets full or partial functions related to the processing of information, application of information technologies, among which: 1) service (maintenance of network infrastructure, support and maintenance of open web servers, servicing of automated business systems with the subsequent constant development and support, etc.); 2) design and planning of corporate database placement on the servers of specialized companies; 3) general management of information systems; 4) offshore programming, etc.

The prerequisites and prospects for the development of modern business on the basis of outsourcing, according to Zavodovska I. I. in [8], are: 1) the dynamism of business conduct in circumstances where it is necessary to respond quickly to changes in business (increase of market share, acquisition of a certain share of business participation or, conversely, stock sale, etc.); 2) operational attraction of additional resources (material, labor, financial, etc.) for the implementation and development of IT projects; 3) the need to improve the quality of providing universal services and standardize them by creating a single technical support service for all departments of the company; 4) the dismissal of highly skilled senior management personnel to perform complex tasks in strategic planning, corporate governance by engaging external outsourcing companies in the operational tasks; 5) lack of appropriate qualification level for own employees to perform special technical knowledge by hiring employees from a company specializing in the relevant services; 6) inappropriate involvement of a specialist on a full-time basis to perform certain non-key functions; 7) the need for improvement and standardization of work in the management of large processes; 8) the need to make an optimal managerial decision to achieve objectivity by engaging an impartial consultant.

However, there are problems of outsourcing development at enterprises, which, according to the authors of works [1-9], are as follows: 1) loss of control over own resources and a certain part of production; 2) decrease of productivity of own workers; 3) increase of expenses in the transfer of secondary functions; 4) decrease in the quality of goods and services; 5) the risk of leakage of commercial information of the enterprise; 6) an undeveloped culture of interaction between the enterprise and the outsourcer; 7) training other people's specialists instead of their; 8) lack of experience of communication with outsourcing companies; 9) a small number of outsourcing companies.

The evaluation of regulatory legal framework [10, 11] of outsourcing activities in Ukraine and in the world indicates that Ukraine has no relevant legislative and regulatory document regulating such activities. The world legal framework is more developed, where among the legal documents of the leading world organizations for 2016 [12-14] the Directive EU was adopted, which legislatively defined the concept of international outsourcing as a model for business, according to which the company transfers its separate functions or business processes to a foreign organization under a long-term contract. The specificity of international industrial outsourcing (which is predominantly based on long-term cooperation agreements) points to the boundary between international outsourcing and international supply of goods under subcontracting. In case of outsourcing, all risks associated with the project are borne by the seller, and subcontract risks are shared between the outsourcer and the buyer.

In regulatory documents adopted in Ukraine in 2017, it was determined that the entity of outsourcing activity is an agent (intermediary) [10], and outsourcing should be considered "transfer of functions of inspections the availability and condition of property on a contractual basis to another organization of any form of ownership"[11]. The main laws affecting the activities of all types of enterprises in Ukraine, regardless of ownership, are the Economic Code of Ukraine, where the legal, economic and social provisions of their activities are formed, and the Tax Code in which the principles of taxation of economic entities activities in Ukraine are determined.

A characteristic feature of the global economy is the rapid growth of competition, where the winners in this struggle are only those companies with the implementation of the most effective models of business organization. In an increasingly open national economy, one of the most modern and successful business models is outsourcing. Outsourcing business model involves certain functions of the internal divisions of the company (accounting, legal services, marketing research, maintenance of the internal information network, processing of incoming information, public relations, etc.) to transfer to other service organizations that are highly specialized in these services.

Based on the specifics of IT business, IT enterprises have many years of outsourcing experience. On the IT market, companies with decades of experience in the development and maintenance of business information systems, and about 500 successful projects in 18 countries of the world, act as an IT outsourcer, that is, a specialized company that meets the needs of outsourcing other IT services. IT outsourcing in IT enterprises includes: 1) the deployment of corporate databases on their own servers and servers of specialized companies; 2) services for servicing the network infrastructure of enterprises and organizations; 3) services for full or partial servicing of web servers; 4) design and planning of automated business systems with the further constant development and support; 5) services in full or partial management of information systems of enterprises; 6) services on creation and maintenance of open web servers; 7) offshore programming; 8) IT consulting and so on.

The results of the analysis of outsourcing activities of IT enterprises [14] in the first half of 2017-2018 are presented in Table. 1, with the largest share of offshore programming services (1st half of 2017 – 31,50 %; I half-year 2018 – 34,50 % of the total amount of outsourced services provided) and IT consulting (1st half of 2017 – 28,10 %; and the first half of 2018 – 31,20 %). The latter allows you to get the most out of the information system (increase its manageability, transparency and profitability) for each customer-enterprise outsourcing services by reducing the cost of its maintenance.

Table 1

**Analysis of outsourcing activities of IT enterprises in the first half of 2017-2018.**

№	Indicators	Years		Deviation	
		the I half-year of 2017	the I half-year of 2018	absolute	%
1.	Total amount of outsourced services provided, ths. UAH	14 824,20	16 696,87	1 872,67	113 %
2.	Share of services for placing corporate databases on external servers, %	5,64 %	3,20 %	-2,4 %	57 %
3.	Share of network infrastructure services, %	21,70 %	15,80 %	-5,9 %	73 %
4.	Share of IT consulting, %	28,10 %	31,20 %	3,1 %	111 %
5.	Share of offshore programming, %	31,50 %	34,50 %	3,0 %	110 %
6.	Share of services for maintenance of open web servers, %	7,72 %	8,70 %	1,0 %	113 %
7.	Share of IP management services, %	4,10 %	3,80 %	-0,3 %	93 %
8.	The share of outsourcing personnel (outstaffing), %	1,20 %	2,80 %	1,6 %	233 %

Note: compiled by authors

Table 2

**List of documents required for placing an agreement with the organization-customer of IT outsourcing services**

№	Title of the document	Resident	Non-resident
1.	Constituent documents (charter of the enterprise)	+	+
2.	Certificate of state registration of a legal entity	+	+
3.	Excerpt from the Unified State Register	+	-
4.	Exit from a commercial, bank or court registry	-	+
5.	Order (protocol) on the election of the head of a legal entity	+	+
6.	Power of Attorney issued to a legal entity representative	+	+
7.	Documents certifying the position of a person	+	+
8.	Presence of a seal of a legal entity	+	+
9.	Certificate of translation of documents into Ukrainian language	-	+
10.	Legalization of documents by the authorities of the Ministry of Foreign Affairs of Ukraine	-	+

Note: compiled by authors

Table 3

**Analysis of indicators of outsourcing activity administration of IT-enterprises for the first half of 2017-2018 years**

№	Administrative Indicators	The I half-year	
		2017	2018
1.	Total amount of outsourced services provided, ths. UAH	14 824,20	16 696,87
2.	Share of outsourcing services, %	77,50 %	79,90 %
3.	Average annual number of employees, os.	129	143
4.	Outstaffing share, %	1,20 %	2,80 %
5.	Share of employees employed in outsourcing, %	27,50 %	1326,65
6.	Total number of valid outsourcing deals, units.	72	81
7.	Total NDA transactions, units	37	46

Note: compiled by authors

Indicators of administration of outsourcing activity of IT enterprises are presented in the table. 3.

Preferably, IT companies provide a range of consulting services in the field of information technology (IT consulting), which include audit, analysis and optimization of business processes; selection, implementation and service support of software solutions; training of the personnel of enterprises-customers of outsourcing services by creating a unified, well-built IT infrastructure at the customer.

The total amount of IT consulting services provided in the first six months of 2017 amounted to 4 165.6 thousand UAH, and in the first half of 2018 – 5 209.4 thousand UAH.

In tabl. 2 it is shown the list of documents necessary for the conclusion of an agreement with the organization-customer of outsourcing services.

An additional service when concluding an agreement on outsourcing services is the conclusion of the NDA-agreement (confidentiality agreement). Such confidentiality agreements are designed to protect participants in outsourcing agreements from disclosure of information important to each party, so the term NDA agreements is defined in the main agreement or continues to be in force in the new framework agreement on outsourcing cooperation. An NDA-one-way agreement is concluded when the transfer of information goes one-way, it is mostly taken by the outstaffing of employees. A two-way NDA agreement is accepted when there is a risk to lose confidential information for both parties. The main purpose of the NDA-agreement is to blame the offender for the violation of confidentiality and oblige it to compensate the injured party for damage.

In the case of publicity, the contract serves as a legal basis for a claim to the court for the recovery of damages. Another important feature of the NDA is that the parties undertake not to disclose the confidential information they received in the context of business relations. This does not in any way relate to information available from publicly available sources.

Consequently, the administration system and the overall document flow of IT outsourcing processes are at an appropriate level, with most employees having entered into an NDA. In the first half of 2018, the share of outstaffing (2.8 %) is growing more than twice, and the number of NDA agreements, compared to the corresponding period in 2017, has not increased significantly, which causes the risks of disclosure of confidential information and claims to the court for damages compensations.

During the economic activities of IT-enterprises the rate awareness of management personnel plays an important role, meaning provision formalized relevant information required in certain time. Systems used in IT companies are aimed at solving the basic problem of quality awareness, which is to meet the information needs of each user, regardless of a rate or a management level.

The effective formalization of useful information in IT companies based on the order workflow, built on the principles of efficient workflow organization and routes of the documents flow taking into account the industry specific features of IT companies.

Depending on the size of the organization, its industry features, the list and structure of the relevant services are formed. Management of IT enterprises is characterized by a multi-level state of administration of major business processes. In the state of IT enterprises there are separate administrative positions available: secretary-referent of the director, IT projects office manager, business assistant in the sale department, staff manager, clerk, technical operator of the technology department, personal assistant to the chief designer, head of the secretariat, etc. However, there are no separate services for IT enterprises.

The service is a separate independent structural unit, which is directly subordinate to the head of the enterprise. Under the condition of a small volume of document flow, the performance of service functions of a particular direction is (on the basis of a regulatory document) on one of the employees of the enterprise. The need for the development of regulations on structural units is provided by part two of Article 64 of the Commercial Code of Ukraine, according to which the functions, rights and responsibilities of structural units are determined by the provisions on them, which are approved in accordance with the procedure established by the statute or other constituent documents of the economic entity activities. The system of administrative management of IT enterprises is aimed at solving management problems and staff motivating, the two main of which are: organization of the workplace and the formation of an effective system of personnel motivation.

Let's investigate the trends of administration development in IT enterprises during 2014–2017 (table 4).

Simulation of the development of the administrative management system of IT enterprises allows to obtain concrete economic results: increase of labor productivity, decrease of time losses during implementation of projects, which will have a positive effect on reduction of full cost of services.

**Investigation of trends of administration development in IT enterprises during 2014-2017**

Indicators of development of administration	Value by years			
	2014	2015	2016	2017
Type of structure of the administrative management system	+	+	+	+
Type of planning and budgeting system	+	+	+	+
Number of structural divisions	12	12	13	13
Number of provisions for divisions	6	8	12	13
Number of job descriptions	27	32	36	48
Presence of staffing schedule	-	+	+	+
Route maps of workflow	-	-	+	+
The number of sample documents from each document flow procedure	2	5	7	19
Availability of unified tariff system	-	+	+	+
Availability of a unified result system	-	+	+	+
Availability of a unified system of employee participation in profits	-	+	+	+
Availability of a system of economical production	-	-	+	+
Availability of resource administration system	-	-	-	+
Number of quality management system certificates (ISO 9000)	1	1	2	5
Availability of electronic document circulation	-	-	+	+

*Note: compiled by authors*

Since the main tasks of IT business documents are: efficiency of document circulation; one-time residence of documents in the divisions of the enterprise; direction of communication of documents to employees for whom information is most relevant and useful; exact correspondence to the IT business operation scheme..

The modeling of a rational system of outsourcing management that could take into account the specificity and dynamics of the control object, the interconnection of elements within the system, determines the influence of the external environment on the functioning of the IT enterprise system [15-16].

Consequently, the system of document management of IT enterprises should be organized so that the benefits of information support received from managerial decisions exceed the costs of formalizing information. Efficiency, economy and reliability of the operation of the IT document management system are provided by the following elements of the mechanism of administrative activity.

1. Direct and operational flow of documents, where the route of the document is selected on the principle of one-time stay of the document in one structural unit, and various documents processing operations are executed in parallel or from one executor.

2. The presence of a document in an instance is conditioned by the necessity of its processing and corresponds to the organization and labor technology of the worker.

3. The movement of documents is justified and excludes feedback.

4. Processes of processing and order of passing are the same.

Since IT companies are mostly outsourced and work in the field of high intellectual class software development by providing IT consulting and offshore programming, in the process of innovative development of outsourcing administration, the following problems can occur:

1. Growth of volumes of outsourcing activity.

The growth of outsourcing IT projects and their number results in an increase in administrative work on agreements about outsourcing both external and internal, an increase in document flow through the regular collection of project performance reports to monitor this process, the growth in the number of concluded NDA agreements both with hired workers, and with customers of outsourcing services. This necessitates the organization of a separate structural unit – outsourcing services, where employees will be responsible for the implementation of internal and external outsourcing processes, administering document flows due to outsourcing activities.

Therefore, among the recommended measures to solve this problem, it may be the creation of an outsourcing service or sharing responsibility for the outsourcing administration process between the IT project managers and the HR department manager.

2. The next issue is the lack of a provision on the departmental unit and job descriptions of the outsourcing service inspectors, the route chart of the document flow, document samples in the document flow system from each outsourcing administration procedure, a unified system of employee participation in revenues (profits) from outsourcing activities at IT enterprises, etc.

The recommended measures to address this problem include the formation of the regulations on the structural unit and the approval of the job descriptions of the outsourcing inspectors, the development of a route map of the flow of documents, the approval of document samples in the document flow system for each outsourcing administration procedure that can be relied on the commercial director, Chief of the Legal Department and Chief of the HR Department, developing a provision on a unified system of employee participation in revenues (profits) from outsourcing of activities can be relied on the chief accountant and others.

3. Significant material losses in recovering damages caused by the consequences of failure to comply with the NDA.

Among the consequences of the breach of NDA-agreements can be: the harm from disclosure of confidential information (for example, an employee simply forgot to delete the file and he got someone that information surfaced and there are damages, direct or indirect damages inflicted by the publication of confidential information and damage to the goodwill, which is considered as indirect damage. The severity of the consequences is determined by the court, and the fact of non-fulfillment of the clause of the contract is established only by a court decision, which may oblige IT companies to reimburse the losses incurred. An alternative to a court may be a voluntary agreement with the owner of information, which rarely ends without material damage for the offender.

Consequently, there are alternatives for improving outsourcing administration of IT-companies: a separate service outsourcing creation, and concentration of all document flow on employees of the service or the distribution of powers and responsibilities between the heads of IT projects,

commercial director, heads of HR-department, legal department and chief accountant.

### **Conclusions, which sum up the work and prospects for further research in this direction**

Taking into account the results obtained in the work, we note the rapid innovation development of the global outsourcing market over the last decades. We consider it is expedient to model the outsourcing market in Ukraine, which develops rapidly. Since outsourcing provides numerous benefits to the company and positively affects the economic performance of its activities, this proves the feasibility of its introduction into the business activities of enterprises. Having numerous varieties, now outsourcing has been distributed in virtually all types of economic activity of enterprises.

In the work, a detailed review of scientific and methodological literature and regulatory support for the administration of outsourcing activities in the last 2018 was made. Having analyzed the information received about the state and trends of changes in the indicators of economic activity, it was found that one of the main tasks of any society is to master the most up-to-date scientific and technological achievements, widespread use of universal intellectual property through the creation and development of information networks, provision on this new social progress in establishing moral constraints on the dangerous consequences of scientific and technological progress. The paper analyzes the main factors influencing the development of the processes of administration of the outsourcing activity of the enterprise, including the administration system and the overall document flow for outsourcing processes, with the majority of employees concluded NDA agreements. The system of document management of IT enterprises is organized in such a way that the benefits of the received information support of managerial decisions exceed the costs of formalizing information. Efficiency, economy and reliability of operation of the IT management system for document management ensure solutions to these problems.

The modeling of a rational system of outsourcing management that could take into account the specificity and dynamics of the control object, the interconnection of elements within the system, determines the influence of the external environment on the functioning of the IT enterprise system.

There are alternatives to improving the management of IT outsourcing activities: creating a separate outsourcing service and concentrating the

entire document flow on the employees of this service, or sharing powers and responsibilities between IT project managers, commercial director, heads of HR department, legal department and chief accountant. At the current stage of development of the Ukrainian economy, ensuring the effective functioning of IT enterprises requires continuous improvement of the administering processes of its activities and processes of optimal use of production potential, processes for responding to changes in the external environment.

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