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Research paper

Outsourcing of port operator business processes: the case of state enterprise “commercial sea port “chornomorsk””

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Abstract

In modern conditions, port operators are forced not only to maintain a constant competitor in the struggle for freight traffic, but to implement structural transformations, to update management methods, to change the specifics of relationships with business partners. One of these methods is outsourcing. It allows to reduce port operator costs and to focus on the main types of activities.
The categories of port operator business processes are clustered in the article depending on the possibility of transfer to outsourcing. Business processes to be outsourced to reduce costs are considered. The possibility of outsourcing port operator business processes based on outsourcing complex effect calculation is substantiated.
To confirm the results presented in the article, the calculations were made for state port operator and its department.

Keywords: *Outsourcing; Business Process; Port Operator; Outsourcing Effect.*

1. Introduction

Prevailing state regulation and prevailing state-owned enterprises were features of the stevedoring services market in Ukraine recently. However, after the adoption of the Law of Ukraine "About Sea Ports of Ukraine" in 2012, the situation has considerably changed and private port operators managed to develop and strengthen their market positions. The development of competition in the stevedoring services market has become a result.
In addition to significant investments to the port infrastructure development, port operators should implement structural transformations, update management methods, and change the specifics of relationships with business partners. The state port operators need special changing because they lose their competitive position daily.
Currently there are 13 state port operators in Ukraine. They operate under the jurisdiction of Ukrainian Sea Ports Administration, which owns 26% of the stevedoring services market in Ukraine, while 74% of the cargoes are handled by private companies (Figure 1).

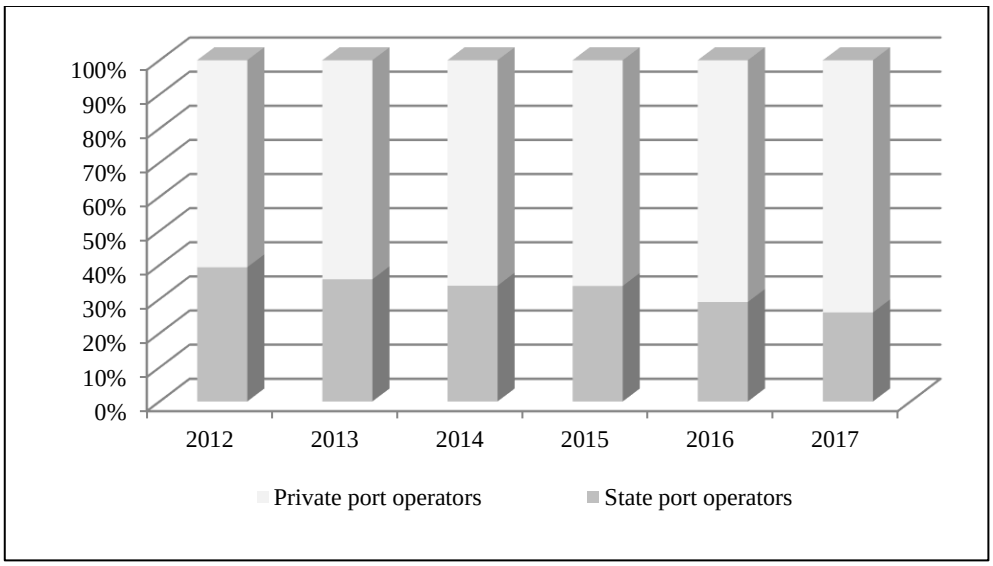


Fig. 1: Cargo Turnover Structure in Ukraine: State and Private Port Operators.

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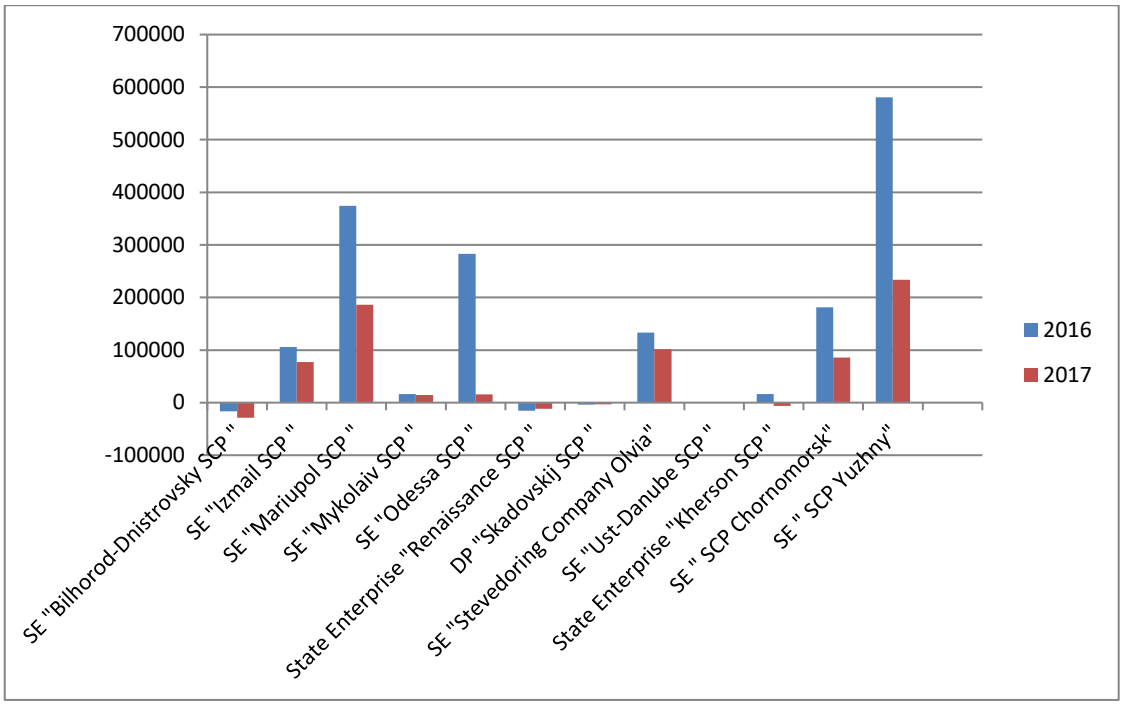


Fig. 2: Net Profit Dynamics of State Port Operators in 2016-2017, Thousands UAH.

Reducing volumes of cargo turnover also negatively affected to the financial indicators of state port operators. So in the period 2016-2017 net profit of almost all state port operators was reduced (Fig. 2).

Thus, state port operators should cooperate with private companies for further development in different fields of activity. Outsourcing is one of the perspective forms of cooperation between the public and private sectors. It means transferring non-core business processes to the outsourcing company and getting benefits from cost savings. Outsourcing involves the transfer of traditional non-key business processes of the port operators to external executors - outsourcers, subcontractors, and highly skilled third-party specialists.

2. Literature study

The problems of using outsourcing in the enterprises activities, including marine industry enterprises, are considered in the Ukrainian and foreign scientists' works [2-21].

Oneshko, S. [2-3] researches the prospects of separating the port operator's business processes and the possibility of optimizing its costs in the process of choosing a outsourcing services supplier. The result of the study is an economic model for choosing an outsourcer by the criterion of the profit intensity.

Ozarinska, V. [4] learns the advantages and disadvantages of outsourcing, the risks of its implementation in the port maritime industry.

The issue of transferring container handling operations to the private operators outsourcing in ports was investigated in [5] by the example of Dare es Salaam Port.

Draskovic, M in his paper [6] analyzes the capability of using the strategy of organizational logistics outsourcing in order to expand the seaport of Bar. M. Lacity, L. Willcocks [7] are research the strategic drivers of outsourcing, including innovation.

Owusu, P.A. & Duah, H.K. [8], in their study, review the possibilities of facilitating the enhancement of intra-port operations of Cocoa Marketing Company (CMC) Takoradi by assessing the performance of outsourcers in the area of haulage operations. The study has proven that outsourcing intra-port handling operations facilitates to the cost-effectiveness, since third-party providers reduce costs the company might otherwise have incurred. Outsourcing gives the opportunity of more effectively clients service. The research also showed the lack of the management support to the outsourcing may be the main source of outsourcing problems for intraport handling operations.

Weerakkody, V. & Irani, Z. (2010) work is dedicated to the study of the decision-making process connected on outsourcing service provider choosing with a special emphasis on the risk assessment [21].

To implement outsourcing to the port operator activity, it is necessary to identify its business processes, which are investigated by the authors in the works [2-3, 9] and evaluate that business processes which can be transferred to outsourcing.

However, the studies do not review the possibility of outsourcing the port operator's business processes, and do not take into consideration the current role of port complexes as a logistics centers provide not only the general logistic services but also value-added services. Therefore, the purpose of this work is to study the business processes of the port operator, their classification, depending on the possibility of transfer to outsourcing and taking into consideration the port operators' logistic orientation.

The work result is the justification of the transfer possibility of outsourcing port operator business processes on the basis of calculating the complex outsourcing effect.

3. Methodology / materials

Outsourcing is long-term, result-oriented business cooperation with a particular service provider. This form of cooperation will help the port operator to focus on fulfilling strategically important functions and avoid additional costs connected with non-core activities. Experts point out using of outsourcing allows 30% reduction of expenses in the economic activity process and thereby increase the profitability due to the resources taking out of non-core activities [2].

In the order to increase the economic efficiency of activities, port operators should focus on the fulfilling of their core processes, and non-core business processes should outsource to third-party outsourcing companies.

The port operator main activities are handling operations, storage and warehousing services, etc. The main business processes are strategic and determine the profit of the port operator. Non-core (accessory) business processes provide the main business processes work, their contribution to the consumer value creation is indirect, it is realized through the results of major business processes [9]. In addition, port operators provide value added services. The

classification of port operator business processes is presented on the Fig. 3. It considers the possibilities of transfer to outsourcing.
Outsourcing is a tool of the port operator management in the short and long terms. Its purpose in the short term is the reducing of costs, in the long term - the economic potential growth and increase the enterprise market value.
The main motives and preconditions of using outsourcing are:

- The need to improve the quality and efficiency of the work;
- Possibility to reduce costs, primarily indirect due to the transfer of unprofitable units;
- Increasing flexibility in the port services dynamic market;
- Focusing on stevedoring and terminal operations;
- Avoiding additional investments in non-core activities;
- Reducing certain risks and taxes.

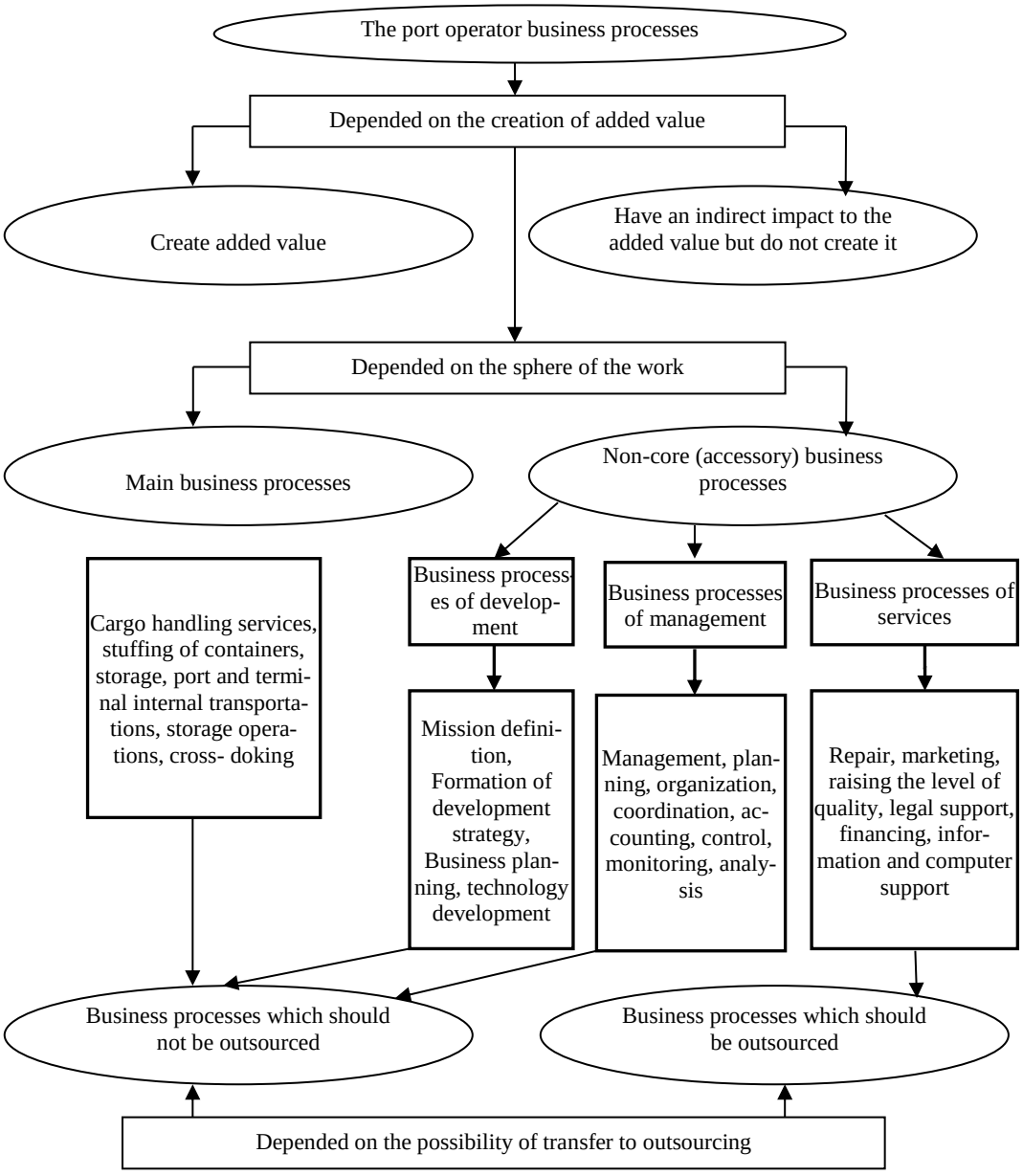


Fig. 3: Classification of the Port Operator Business Processes.

Table 1: Advantages and Disadvantages of Outsourcing

	Advantages	Disadvantages
1	Cost reduction	Possibility of the confidential information disclosure
2	Management and staff focusing in core functions	Missing the direct control over the functions delegated to implement outsourcing firms
3	Improved financial and operational flexibility	Danger of damages due to bankruptcy of the outsourcer
4	Reducing the necessity of the investment resources to the development of individual units	Deprivation of qualification, personnel, equipment
5	Higher level of quality and efficiency when services are provided by experienced outsourcing companies	Possible losses in response to market conditions changes
6	Reducing certain taxes and risks	

An important motive in the outsourcing projects is to reduce costs and improve quality. The transition to outsourcing is primarily designed to make business more efficient, hence the economic benefits will emerge as soon as a properly organized business receives additional profit. Although, situations letting to reduce costs immediately due to outsourcing (and at the same time get quality guaranteed service) are not rare.
The advantages and disadvantages of outsourcing are shown in the table 1.

Outsourcing always provides for an economically justified decision, as its main ideas are the confidence and transfer of responsibility for tangibles and intangibles. That is why, when enterprises delegate certain functions to other enterprises, they should evaluate and consider the complex outsourcing effect. Improving the quality of the transferred functions, reducing overall costs and optimizing managerial decisions should be the results of the complex outsourcing effect.

To justify the advisability of transferring non-core business processes to outsourcing, it is necessary to determine the complex effect as the difference between costs in the case of transfer processes to outsourcing and the expenses in the case the business processes are still in the structure of the port operator. At the same time it is necessary to consider only the expenses which can be avoided in case of effective outsourcing.

All expenses can be divided into four big groups: fixed costs, production variable costs, indirect administrative costs, commission (agency costs).

Fixed costs include wage costs of managers and specialists of engineering staff with amount of deductions, the amortization, and property insurance.

Variable costs include wage costs of major production workers with deductions, and fuel, electricity.

The variable costs cannot be taken into account, because they will be both in the case of outsourcing and without it. Since, if they are outsourced, they will be incurred by a third party and included in the cost of repair services.

It is logical to assume that the constant costs will be reduced by reducing the labor costs.

Administrative costs are the costs associated with the maintenance and the management of the repair and construction work processes. The transfer of business processes to outsourcing allows the port operator to avoid future administrative costs.

Agency costs are the cost of paying outsourcer's services.

So, making a decision about outsourcing requires a comparison of costs.

In addition, it is necessary to evaluate the possible risks while the business processes of the port operator transfer to outsourcing.

When outsourcing decision is being made, it is essential to determine what risks the port operator can take upon himself, whose actions need to be limited or diversified and which should be avoided.

Among the risks of outsourcing arising under the influence of factors external to the enterprise, it is also possible to distinguish two different groups, namely:

- The risks of improper fulfilling by the outsourcer of his functions;
- The risks caused by the fault of governmental authorities.

The negative impact of first group's risks on the company can be significantly reduced by properly preparing and concluding an outsourcing agreement. At the same time, the risks belonging to the second group cannot be controlled by the enterprise, and therefore it must adapt its activities to the features of their influence.

Thus, the making decision process about outsourcing and evaluation of the possibility of transferring should consist of several stages (fig. 4).

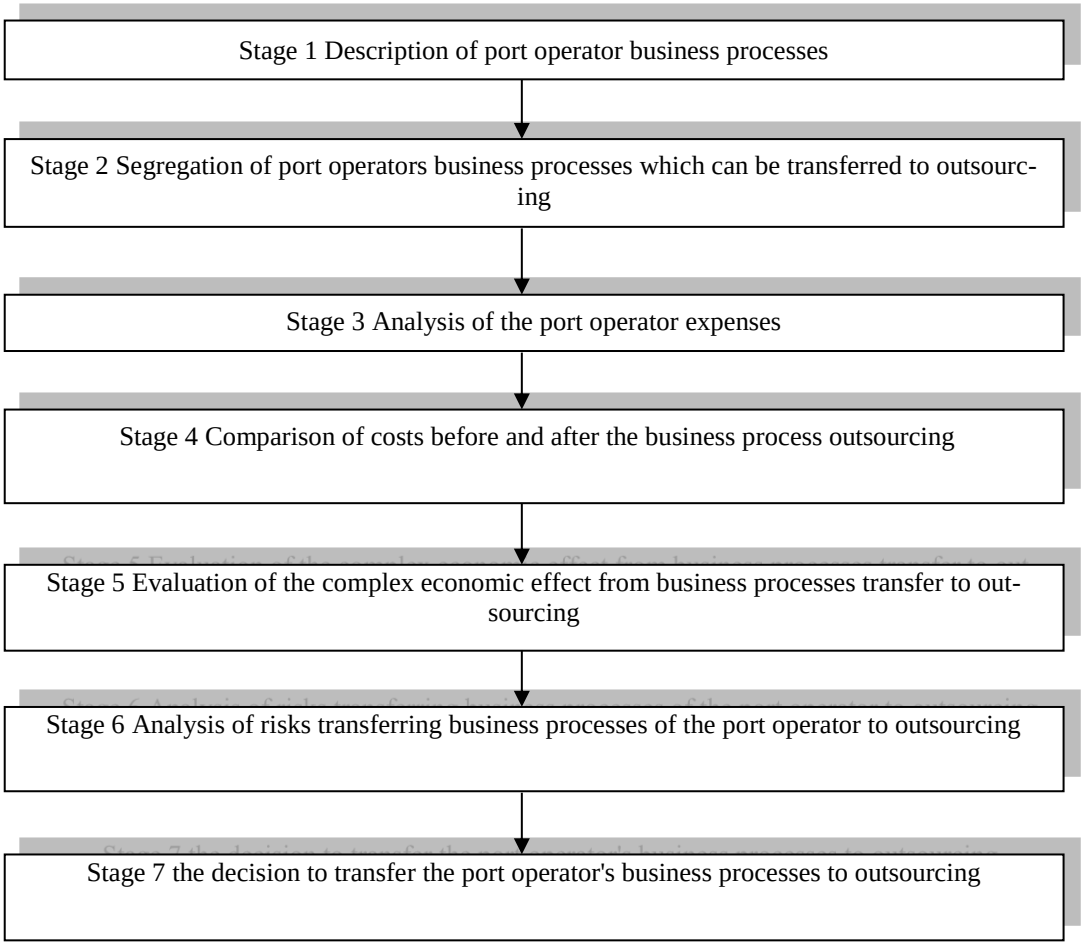


Fig. 4: Stages of Evaluating the Efficiency of Transfer the Port Operator's Business Processes to Outsourcing.

The presented stages of evaluating the efficiency of transfer the port operator's business processes to outsourcing reflect the specifics of the port operator's activity and the specifics of outsourcing business processes in the port industry.

Each of the following stages of outsourcing implementation has its tasks, which must be resolved by the port operator in the transfer of business processes to outsourcing.

Such approach will permit to compare the cost in case of fulfilling the port operator's business processes by himself and the costs of

fulfilling these business processes by outside organizations, take into consideration the risks and making decisions on the transfer of business processes to outsourcing.
Consider how the given methodical approach can be used in practice using the example of state port operator "Sea Commercial Port" Chornomorsk ".

4. Results

The state enterprise "Sea Commercial Port" Chornomorsk" has 7 (seven) terminals (complexes), which carry out handling operations of overloading the general and bulk cargoes, has the base of bulk cargoes, other units, one of which is the department of repair and construction (RCD).
RCD executes repair and construction works in the territory of the port and on contractual basis for other enterprises in accordance with the" State Construction Standards of Ukraine ".
SE "Sea Commertial Port "Chornomorsk" is considering the possibility of transferring business processes of repair and construction works under terms of a contract of outsourcing. In order to make a decision, it is necessary to analyze the dynamics and structure of RCD profits and costs, as well as the impact of the factors that create them, for 2016-2017, to identify reserves and ways to increase revenues and reduce costs.
Consider the dynamics of profits, given in table 2 to draw conclusions about the possibilities of RCD.

Table 2: Dynamics of RCD Profits, Thousands UAH

Indicators	2016	2017	Deviations, ths UAH	Growth rate, %
Income (from third parties)	437	190	-247	43,5
Expenses (from third parties)	787	482	-305	61,2
Financial result (from outsiders)	-350	-292	+58	83,4
Intra-unit revenues	34830	29617	-5213	85,0
Unit costs	35597	30092,4	-5504,6	84,5
Financial result	-767	-475,4	291,6	62,0

The resulting damage in 2016-2017 does not allow talking about the efficiency of the unit. Although in 2017 the unit's losses decreased by 38% compared to 2016 and amounted to 475.4 thousand UAH, loss from outsourcing by 16.6%. Negative impact on such a tendency was the decrease of incomes - more than twice from foreign and 15% of the unit, with inflation in this period amounted to 13.7%.
Since in 2017 expenses exceeded incomes, the analysis of dynamics and structure of production costs of RCD is important.
The RCD costs analysis should be done to determine the expenditure budget and to the structural component of expenditure to determine which of them have the greatest impact on the cost of products and services.
The expenses of RCD in 2017 amounted to 30.09 million UAH; it is below 2016 by 15.5%. The main areas of the RCD are general construction, mechanization and repair of hydrotechnical structures, access roads of highways. Consider the structure of production costs by articles (Table 3).

Table 3: Structure of RCD Expenses in 2017 by Sites, %

Cost item	Construction	Mechanization	repair of hydrotechnical structures, access roads of highways	Others	Total
Salary	22,40	30,04	15,54	38,09	26,47
Extra wages	8,60	19,73	7,38	21,45	14,10
Social welfare spending	6,63	10,51	5,05	12,51	8,62
Fuel	0,00	22,99	0,00	0,00	5,10
Electricity	2,96	0,00	0,00	0,45	0,93
Repair	0,87	5,95	0,00	0,67	1,73
Depreciation	0,29	0,11	0,00	0,33	0,19
Supply	18,11	4,46	64,19	7,61	23,68
Office supplies	0,00	0,00	0,00	0,99	0,26
Amortization	0,00	0,01	0,00	12,51	3,24
Demolition of low value property	1,14	0,38	0,00	0,16	0,44
Land tax	7,55	0,00	0,00	0,00	2,07
Other direct	0,51	0,35	0,16	0,23	0,32
Total	69,06	94,54	92,32	94,99	87,14
Maintenance of buildings	0,18	0,00	0,00	0,22	0,11
Water supply	0,40	0,00	0,00	0,09	0,13
Heat	25,33	0,00	0,00	0,00	6,93
Cargo transportation, service	0,00	0,02	0,12	0,00	0,03
Labor protection, safety	0,18	0,28	0,04	2,09	0,66
Others	0,73	0,00	0,00	0,00	0,20
Services of others	0,32	0,01	0,64	0,00	0,24
Department of material and technical supply	1,93	2,74	6,50	1,80	3,20
Medical examination	0,21	0,00	0,00	0,00	0,06
Maintenance	0,64	2,32	0,38	0,81	0,99
Training courses	1,04	0,00	0,00	0,00	0,29
Property insurance	0,00	0,09	0,00	0,00	0,02
Total	30,94	5,46	7,68	5,01	12,86
Sum	100,00	100,00	100,00	100,00	100,00

The cost structure is dominated by direct costs, which in 2017 accounted for 87.1%. Accordingly, the share of indirect costs is 12.9%.
The largest share in the cost structure is taken by labor costs - 26.5%. Considering both the costs of additional wages and deductions, the total share of such costs is 49.2%, which is due to an exaggerated number of employees. The second place is the cost of the supply that takes place in each section of the RCD, and amounted to 7.1 million UAH in 2017 and 23.7% in the structure.

The division into fixed and variable costs allows to analyze the dependence of costs and profits from production volume while choosing the design and planning decisions. It is determine the break-even model. The calculating of the breakeven point is based on the data of RCD work in 2017 and assuming a 10% increase in revenue. The results will be presented in tab. 4

Table 4: RCD CVP – Analysis, Thousands UAH

Figures	2017	Project (+ 10% revenue)
Revenues of the unit	29617	32578,7

Variable costs	21270,4	23397,4
Marginal profit	8346,6	9181,3
Margin	0,282	0,282
Fixed costs	8822,0	8822,0
Profit	-475,4	359,3
Breakeven point	31303,9	31303,9

The following conclusions can be done in according to the results of the financial analysis:

1) RCD as a structural unit has been unprofitable in recent years;
2) RCD activity is high-cost and inefficient;
3) there is an unjustified increase in the wage fund of managers, engineers;
4) Due to the high complexity of RCD's works and services, variable costs are significantly higher in the expenditure structure.

The conducted research of RCD activity results as a structural subdivision of SE "Sea Commercial Port "Chornomorsk"" has defined the problem of effective management of non-core processes. This problem can be solved by outsourcing.

On analyzing the efficiency of transferring the port operator business processes to outsourcing it is necessary to compare the costs before and after outsourcing implementation.

Table 5: The Economic Effect Calculation from Transfer to Outsourcing RCD, Thousands UAH

Figures	Before implementation of outsourcing project (by 2017 indicators)	After the implementation
Fixed costs	6526,9	764,9
Variable costs	19695,2	19695,2
Administrative costs	3870,3	0
Total	30092,4	20460,1
Agency costs	0	3009,2
Economic effect	6623,1	

Table 6 shows a comparative analysis of costs without outsourcing and after the implementation of the transfer to outsourcing of the "repair and construction work" business process.

Agency costs are 10% of all expenses. Thus, from the transfer of RCD to outsourcing, the annual economic effect will amount to 6623, 1 thousands UAH.

An economic effect will be positive if at least one of the conditions is met:

- Expenses for implementation of RCD business processes are reduced;
- Agency cost is lower than administrative costs.

The cost analysis made possible to conclude that the RCD as a structural subdivision has been unprofitable in recent years, RCD activity is highly costly and inefficient. The total effect of the transfer of RCD to outsourcing will be 6623,1 thousands UAH (23,600 USD). In this regard, the transfer RCD management to a third-party company under the terms of an outsourcing contract is justified and appropriate.

5. Conclusions and future research

As the study showed, the transition precondition to outsourcing in the port sector was the growing competition between state and private port operators on the market of stevedoring services in Ukraine. So port operators need minimizing costs, improving the quality of services and using effective management tools.

As a result of the study, it was found that in today's conditions state-owned port operators have problems with an unstable financial situation, connected with ineffective activities on Ukrainian market of stevedoring services, a decrease in market share and a level of competitiveness. The nonconformity of the applicative managing methods and the unprofitableness of some enterprise divisions are the reasons. The transfer of port operator business processes to outsourcing can be the solution of this problem.

The using of outsourcing by the port operator requires a certain management decisions making possible to increase the efficiency of its operations. The paper identifies and categorizes port operator's business processes, defines those processes which can be transferred to outsourcing, highlights the main stages of evaluating the efficiency, and presents the results of the implementation of the proposed methodological approach for the seaport of Chornomorsk.

The key criterion for deciding on the transfer of port operator business processes to outsourcing is to evaluate the effectiveness of using this tool. Such an evaluating should be made taking into account the specifics of the port activity and include not only the calculation of available cost savings, but also hidden costs associated with analyzing, identifying and addressing the risks of transferring business processes to outsourcing, reducing the number of management objects and control. Positive complex effect is expressed both in the form of direct cost savings, and in improving the quality of outsourced business processes.

Thus, the requirements of the Ukrainian stevedoring services set the task for state port operators to implement the outsourcing of non-core business processes, and such projects are going to grow in the future. Therefore, future research should focus on analyzing already implemented projects of outsourcing port operators' business processes and finding new tools to increase the competitiveness of port operators.

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