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FUNCTIONAL ANALYSIS OF THE SALES DEPARTMENT OF AN ELECTRONIC COMMERCE ENTERPRISE

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The article investigates and systematizes the functions of the sales department at e-commerce enterprises with plans for further use in the development of a project to create a decision support system for the sales department. The analysis was carried out using the methods of systematization, generalization, functional analysis and graphical representation of processes and relationships in the Unified Modeling Language. The main functions of any sales department at a trading enterprise, as well as additional functions that take into account the specifics of the activities of e-commerce enterprises, are highlighted. The interrelationships of the divisions of the sales department at e-commerce enterprises were studied. The concepts, features and problems of the functioning of the sales department at e-commerce enterprises are analyzed. One of the main problematic aspects of the functioning of the sales department at an e-commerce enterprise is the variety of existing structures depending on the type of enterprise and the personal vision of the entrepreneur, as a result of the lack of a single effective system for creating a sales department at an e-commerce enterprise. It was determined that all the mentioned shortcomings make it difficult to create an effective sales department at e-commerce enterprises and, as a result, significantly affect the profitability and economic attractiveness of such enterprises. In order to systematize the functions of one of the most important for generating profit divisions of the enterprise, a model of representation of functional processes and internal relationships was developed using the Unified Modeling Language. The results of the conducted functional analysis of the sales department at e-commerce enterprises are planned to be used to develop a project for a corresponding automated decision support system.

ФУНКЦІОНАЛЬНИЙ АНАЛІЗ ДІЯЛЬНОСТІ ВІДДІЛУ ПРОДАЖІВ ПІДПРИЄМСТВА ЕЛЕКТРОННОЇ ТОРГІВЛІ

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відділ продажів, бізнес-процеси,
моделювання бізнес-процесів

У статті досліджено та систематизовано функції відділу продажів на підприємстві електронної торгівлі з метою подальшого використання у розробці проекту створення системи підтримки прийняття рішень відділом продажів. Аналіз здійснено з використанням методів систематизації, узагальнення, функціонального аналізу та графічного представлення процесів і взаємозв'язків мовою UML. Виділено основні функції будь-якого відділу продажів на торговому підприємстві та додаткові, з урахуванням особливостей діяльності підприємств електронної торгівлі. Досліджено взаємозв'язки підрозділів відділу продажів на підприємстві електронної торгівлі. Проаналізовано поняття, особливості та проблеми функціонування відділу продажів на підприємстві електронної торгівлі. Одним з головних проблемних аспектів функціонування відділу продажів на підприємстві електронної торгівлі визначено різноманітність існуючих структур в залежності від типу підприємства та особистого бачення підприємця, як результат відсутності єдиної ефективної системи створення відділу продажів на підприємстві електронної торгівлі. Визначено, що усі зазначені недоліки ускладнюють створення ефективного відділу продажів на підприємстві електронної торгівлі та, як наслідок, значно впливають на

рентабельність та економічну привабливість таких підприємств. З метою систематизації функцій одного з найбільш важливих для генерування прибутку підприємства відділів, із застосуванням мови UML розроблено модель представлення функціональних процесів і внутрішніх взаємозв'язків. Результати проведеного функціонального аналізу відділу продажів на підприємстві електронної торгівлі планується використати для розробки проєкту відповідної автоматизованої системи підтримки прийняття рішень.

Statement of the problem

In recent years, the share of electronic commerce has been steadily growing on the world and domestic markets. More and more often, trading companies implement and use the possibilities of Internet technologies, which allow entrepreneurs to expand their influence markets, facilitate search and interaction with the target audience, reduce expenses for maintaining warehouse and trading premises, etc.

But at the same time, the e-commerce market is challenging for entrepreneurs because of new forms of distribution, marketing, sales, and work organization. Therefore, there is a need for a more detailed study the peculiarities of the activities e-commerce enterprises, the separation and systematization of the functions the main departments, which is the sales department.

Analysis of latest research and publications

The activities of e-commerce enterprises are the subject of research by foreign and domestic scientists. In particular, one should pay attention to [1] and a series of works by the same author [2–4]. These works consider the content, advantages and disadvantages of e-commerce, features of the application of information technologies used in various functions in the field of retail trade – CRM, ERP, POS equipment, RFID, SCM and others.

Among the publications of domestic authors, it is worth highlighting the article by Khovrak I.V. [5], which reveals the essence, subjects and forms of e-commerce, the main advantages and disadvantages of e-commerce in Ukraine. Krasnokutska N.S. and Kardovska N.S. [6] developed the theoretical provisions of sales management in an online store from the standpoint of a systemic approach and identified the main processes and functions that make up the content of sales management in an online store. Features of the development of Internet trade, advantages and disadvantages that enterprises receive due to the introduction of electronic trade are highlighted in the work of Danko T. and Yavorska N. [7]. This work also carried out a comparative description of certain aspects of traditional trade and Internet trade in its current state.

In the article [8], the authors Bokovets V., Davidyuk L. revealed the prerequisites for the development of electronic commerce, the conditions for its formation as a separate branch of the economy, and also analyzed the largest regions of electronic commerce, companies implementing electronic commerce, and other statistical data regarding online orders in Ukraine.

Therefore, the organization of the activities of e-commerce enterprises has been repeatedly considered in one way or another by researchers, but most scientific achievements are aimed at studying the activities of

enterprises in e-commerce in general. However, the question of distinguishing and systematizing the functions and relationships of the sales department in the context of an e-commerce enterprise, taking into account all the peculiarities of the activities such enterprises, is still relevant. After all, it is the sales department that forms the basis of any trading enterprise and occupies an important place in ensuring its effective functioning.

Goals formulation

The purpose of the article is to carry out a functional analysis of the sales department at the e-commerce company in order to identify and organize the functions of employees, to highlight the relationships between the divisions of the sales department.

Presentation of the main research material

Every modern person has encountered e-commerce enterprises as a buyer, seller or employee. And since the beginning of the COVID-19 pandemic, e-commerce began to occupy an important part of the lives of each of us. According to The Statistical Portal [9], in the period 2014–2019, the volume of global retail e-commerce increased by 2.6 times, and in 2021 amounted to approximately 4.9 trillion US dollars. Obviously, the modern business environment is rapidly transforming, and the introduced quarantines are limited by a much larger number of entrepreneurs and buyers who have turned to Internet technologies to conduct trade transactions.

E-commerce in Ukraine began to take shape later than developed countries, but according to Eurostat [10], Ukraine currently ranks first among all European countries in terms of the growth of e-commerce volumes. The rapid development of e-commerce in our country requires monitoring, support and promotion of the further development of this industry. The war of 2022, the volunteer movement and the internationalization of military and humanitarian aid provide even greater acceleration to these processes.

The rapid acceleration and availability of technology is shaping a new economy with another forms of distribution, marketing, sales, and work organization. Inefficient organization of activities in new conditions leads to an increase in costs for supporting functioning, irrational use of resources, a decrease in the controllability of processes and significant losses.

The main difficulty in studying the business processes of the sales department of e-commerce enterprises is the variety of existing structures of the department, functional divisions depending on the type of enterprise and the personal vision of the entrepreneur. As a result, there is no single approach to creating a sales department. This situation greatly complicates the creation of an effective

sales department at an e-commerce enterprise, which affects the profitability and economic attractiveness of such enterprises. Therefore, in order to identify and organize the functions of one of the most important departments for generating profit, we will conduct a functional analysis of the sales department at the e-commerce company.

Recall that functional analysis is a methodology of complex research of cause-and-effect relationships, separate driving forces of the development of economic phenomena and processes, in which emphasis is placed on the knowledge of dependent functions [11].

The object of functional analysis within the system approach is considered as a system that is characterized by an internal structure and is capable of performing certain useful functions. The description of the system as functions allows to abstract from the specific carriers of these functions (system components) and its physical and economic nature. The function is a converter of input resources and a creator of output systems.

The sales department at any trading company, as a rule, performs the following functions: attraction of new buyers; optimization of orders received from them; conclusion of contracts for the supply of products; ensuring the rhythm and regularity of product sales; study and satisfaction of customer needs for the company’s products; control over the fulfillment of contractual obligations with partners; formation and improvement of the sales information support system.

In addition to the functions mentioned above, e-commerce companies are characterized by certain features. The main difference in the sales process at an e-commerce company is the possibility of selling goods that are not available in the warehouse, making payments using electronic payment systems or postal services, and a significantly longer period of time compared to ordinary trading activities between the order, payment and receipt of the order. For the functioning of the sales department, this means the need to:

- carrying out additional monitoring of the presence of missing goods in the warehouses of the supplier;

- availability of the possibility of quick organization of additional deliveries;
- tracking and fixing the payment;
- availability of control over the reliability of all recipient data when transferring orders to postal services.

According to [6], sales management is a field formed at the intersection of management, marketing and sales. The idea of sales management at an e-commerce company is to identify all possible areas of sales expansion and make decisions regarding the choice of each of them, based on the available potential. This level of sales management is strategic, as it determines the prospects for the development of an e-commerce enterprise. The strategic tasks of the sales department include: forecasting and planning of potential sales channels and methods; justification and selection of the number of intermediate links on the way of goods from the seller to the consumer.

According to the hierarchical structure, sales management is carried out at the level of functional divisions. In an e-commerce business, this can be the sales department, the purchasing department, and the marketing department. At the level of the functional division, sales management is tactical and operational, related to work with existing customers, implementation of programs for attracting new buyers, search and selection of commercial offers for the supply of goods, etc.

On the basis of the generalization of works [12–14], the functions of the divisions the sales department at the electronic trade enterprise were supplemented and systematized in the Table 1.

For the better understanding of the sales department’s functioning process at an e-commerce company the model of functional interaction between the divisions highlighted in Table 1, using activity diagrams in the Unified Modeling Language were constructed.

As can be seen in Fig. 1, among the divisions that make up the sales department at the e-commerce company, the analytical department occupies an important place. Also, the

Table 1 – Functional analysis of divisions of the sales department at the e-commerce enterprise

Divisions	Specialists	Functions
Purchasing divisions	Purchasing manager	Forming orders, sending to suppliers, collecting responses, carrying out, clarifying the specifics of delivery (number of seats, time of arrival of the car, etc.), monitoring the availability of the necessary goods and their quantity at suppliers.
	Supplier relationship management manager	Ensuring the continuity of the supply of goods, finding suppliers for all available product items, agreeing on delivery schedules, finding backup suppliers, assessing the fulfillment of obligations by suppliers.
Divisions of analytics	Manager of analytics and assortment management	Analysis of the product flow, selection of product groups, demand forecasting, support for decision-making on expanding the assortment, removing items from the assortment, on pricing, on manual adjustment of purchase volumes (season, supplier promotions, obligations to suppliers, etc.).
Sales divisions	B2B sales manager	Creation of commercial proposals, invoices, processing of commercial proposals, conclusion of contracts, shipment of goods, formation of TTN, payment and tracking of the status of contract execution, creation and maintenance of friendly business relations with partners.
	B2C sales manager	Checking the availability of the ordered product, processing and confirming the application, consulting, checking payment, forming the TTN, tracking the delivery status, resolving disputed issues, collecting feedback.
Marketing divisions	Advertising manager	Creation and implementation of product promotion strategies on the market, clarification and familiarization with products, promotions, client offers by methods of advertising influence, attraction of new customers (organic search, Internet advertising, e-mail mailings, media activities, online events), analysis of the effectiveness of sales channels.

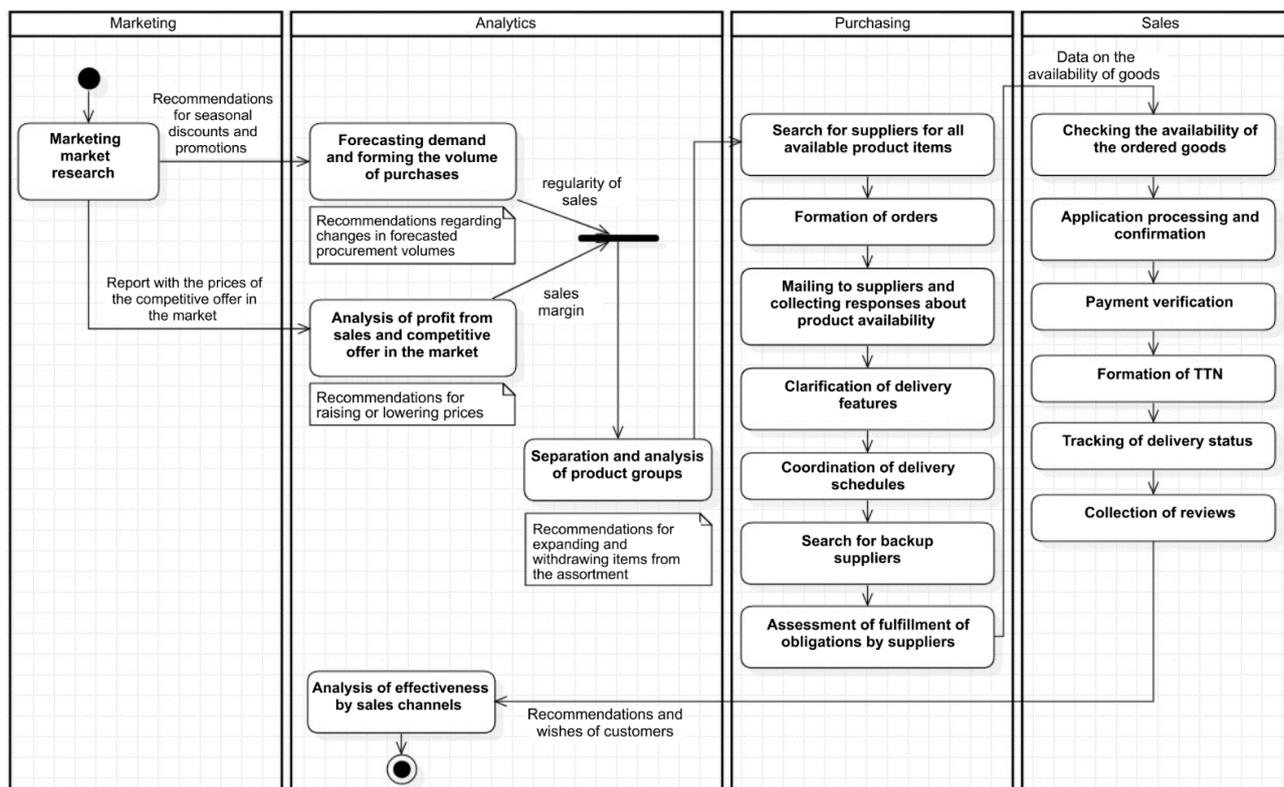


Fig. 1 – Model of the functional interaction of divisions of the sales department an e-commerce company (using the Unified Modeling Language)

tasks of the analytical division are those that most require the development of decision-making support mechanisms (algorithms), because the efficiency of the sales department and the enterprise as a whole depends on the recommendations provided by the analyst of the e-commerce enterprise.

Conclusions

In the article, the functional analysis of the sales department at the e-commerce enterprise is carried out. It can be used as a basis for the formation of a technical task for the development of a project of an automated decision-making support system for this department.

The research was carried out using the methods of systematization, generalization, functional analysis and graphical representation of processes and relationships in the Unified Modeling Language.

Concepts, features and problems of the functioning of the sales department at an e-commerce enterprise are analyzed, the main functions of any sales department at a trading enterprise and additional ones, taking into account the peculiarities of the activities of e-commerce enterprises, are highlighted.

It was revealed that one of the main problematic aspects of the functioning of the sales department at an e-commerce

company is the variety of existing structures depending on the type of company and the personal vision of the entrepreneur. The result is the lack of a single effective system for creating a sales department. This significantly complicates the creation of an effective sales department at an e-commerce enterprise, which in turn significantly affects the profitability and economic attractiveness of such enterprises.

The interrelationships of the divisions of the sales department at the e-commerce enterprise were studied. As a result, a model for representing functional processes and internal relationships using the Unified Modeling Language was developed.

The functional analysis of the sales department at an e-commerce enterprise allows us to identify and systematize the tasks of functional units, evaluate the rationality of existing processes, implement the search for problematic issues (weakly structured tasks) in the functioning of units and the system of their interaction and determine effective ways to implement them.

The results of the conducted functional analysis of the sales department at the e-commerce enterprise are planned to be used for the development of a project for a corresponding automated decision support system.

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