

*The object of this study is the growing interest of the target audience in the introduction of category management tools to the business processes of pharmacy retail. In pharmaceutical practice, the methodical toolkit for the study of the category management system is not sufficiently widely presented. That is why, using the theoretical and methodological basis and conceptual principles of product category management, the evaluation methodology of the MARS Category Management Profile was devised.*

*The purpose of the work is to introduce new approaches to the formation and management of the pharmacy assortment based on the concept of category management and to determine ways to increase the level of efficiency of its work.*

*As a result of the research, the quantitative value of the existing and optimal result of category management in the network of pharmacies was determined. The calculations show that in the current state the goal orientation is 36 points, and in the optimal state this characteristic will be equal to 27 points, while the analysis orientation is 21 and 28 points, respectively. It has been established that categorical management is focused precisely on the analysis and adherence to research tools, and not on the uncontrolled achievement of the goal.*

*The proposed organizational model of functional interaction of specialists in pharmacy retail could ensure the implementation of principles and the performance of complex tasks facing the category manager. The described components of the MARS category management profile will be used in practice to improve approaches to planning, information and analytical support, and control over the main management processes of the enterprise under study. This could avoid disagreements between management and medical specialists*

*Keywords: assortment management, organizational model, product category, pharmaceutical practice, business model, category management, MARS profile*

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# DIAGNOSING CATEGORY MANAGEMENT IN A PHARMACY RETAIL CHAIN

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## 1. Introduction

Dynamic changes in the market environment under the changing conditions of today's challenges, as well as the strengthening of globalization processes generally necessitate the development of scientific approaches in category management. The above-mentioned processes were significantly influenced by the digitization of the business environment with an emphasis on increased competition in the fight for a potential consumer, saturation of markets with new products, innovations in assortment policy management, Internet space, etc.

The category management system is an alternative approach for a retailer in the pharmaceutical industry, as it requires improvement in the process of managing the range of a fairly large number of product categories. This makes it possible to maximize turnover of categories and profitability

of pharmacies, as well as take into account consumer loyalty when choosing medicines. This circumstance actualizes the problem of assortment management in the specified area.

The key idea of category management is that the assortment management function is concentrated in one "hand", and the entire chain from the selection of an assortment item to its sale is the area of responsibility of the category manager. This specialist manages the product category as an independent line of work (with its own policy: purchases, sales, pricing, and promotion). Under today's conditions, further research into the chosen topic is relevant since the range of pharmacy retail products is expanding, and the work of such enterprises is always in demand. Diagnostics of the category management system will make it possible to minimize risks, optimize material stocks, increase the turnover of pharmacies, ensure cost savings, increase the quality and speed of order fulfillment and response to changes in market condi-

tions. This predetermines the relevance of our research and requires justification of the methodology for improving the category management system in the pharmaceutical industry. Thus, it can be concluded that there is a need to devise an effective methodical approach to category management in pharmacy retail.

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## 2. Literature review and problem statement

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The authors of work [1] describe the services provided under the conditions of pharmacy practice. The reported results of their research make it possible to determine the segment of consumers within pharmacy retail and to focus on balancing the assortment for them. An unsolved issue of this approach is that only the assortment management system can be taken into account in the study, and not the various components of the category management system.

The view of the authors of [2] who consider the future of pharmacy based on the application of the capabilities of artificial intelligence is interesting. The latter is increasingly used to automate, optimize, and personalize various aspects of the pharmaceutical industry, i.e., it facilitates the process of managing product categories and processing a large amount of data. The cited work does not address the possibility of improving the competencies and skills of specialists who do not possess knowledge and skills of artificial intelligence.

The relevance of studying the category management system in pharmaceutical retail can be traced in work [3], in which the authors describe the practice of supplying drugs of a certain category during the COVID-19 pandemic. However, it is possible to observe a trend towards outbreaks of new diseases, and that is why commodity supply, as one of the areas of category management, needs new topical areas, especially in force majeure situations. The unsolved issue of this approach is that this view is quite highly specialized, so the features of supply in this way are appropriate only under the conditions of a pandemic.

The authors of work [4] described the possibilities of implementing category management in the activities of industrial enterprises. Such approaches are possible to control category management of pharmaceutical plants, but the authors have not resolved the issues inherent in pharmacy retail.

Work [5] reports the results of research into the management of product categories from a legal point of view. The authors constructed a matrix of complaints and formulated three categories of the list of medicinal products with the aim of forming an organizational and legal mechanism for increasing the level of pharmaceutical provision of privileged categories of the population. The presented matrix and classification can be adapted to the work of pharmacy retail enterprises, but only taking into account the peculiarities of jurisprudence. However, in the review of scientific publications, this question remains unsolved in general.

The authors of study [6] describe the effective management of product categories, which depends on the role of the category. Systematic differences in the influence of price, promotion and assortment variables were identified, which largely depend on the role (main product, variety enhancement, niche or complement) that a particular category plays in the overall store portfolio. The key unresolved issue is that the proposed approaches are focused exclusively on trade enterprises and cannot be applied in the activities of pharmacies or pharmacy chains.

Methodical approaches for conducting ABC, VED, and ABC-VED analysis of pharmacy composition are described in [7] on the example of a medical and preventive and research institute of India. This methodical approach makes it possible to analyze the categories of medicines but does not take into account other key directions regarding the diagnosis of the components of category management in pharmacy.

In [8], the authors described the management of drug stocks in a pharmacy using ABC analysis and VED analysis. For more effective management of services in the pharmacy, there is a need for timely supply of medicines, and the described method allows predicting the supply according to the just-in-time system. The authors of paper [9] prove the relevance of pharmaceutical inventory management using ABC-VED analysis as a practical and affordable method of optimizing the supply chain.

In [10], the advantages of ABC-analysis and VED-analysis in the management of stocks of health care institutions are determined. Application of the ABC-analysis and VED-analysis methods in the work of the pharmacy warehouse is described in [11]. So, it can be concluded that this is a relevant method in inventory management, which makes it possible to increase the efficiency in the management of enterprises, both in general and pharmacy retail in particular. Conducting ABC analysis and VED analysis is a relevant and effective method, but it does not fully cover the issue of category management.

The authors of work [12] determined the relevance of cooperation between manufacturers and retailers by maximizing profit at the expense of product categories. Manufacturers and retailers are increasingly realizing that both sides can increase profits through cooperation rather than confrontation. The authors determined that category management is one such cooperation strategy, which often involves the appointment of a leading manufacturer as a “category captain”. What is not resolved in the implementation of this approach is that the research is quite highly specialized and makes it possible to analyze only the management of product categories.

The authors of paper [13] focus on the desire for cross-functional integration between suppliers and retailers at different stages of a joint project. Specifically, the authors explore why and how a supplier and retailer want to shift the center of integration from the dyadic to the network level by bringing a third party into the current relationship. For this, a case study was developed to analyze the integration process in the context of category management programs.

There is a somewhat different view of inventory management in pharmacy retail [14], in which the authors prove the advantages of consumer value in the category management model (ECR-method) based on an empirical study. The difference is that it is consumer values that form the company’s assortment and category management system.

The authors of work [15] describe how the MINLP algorithm based on branches and boundaries can be used for a quick and practical implementation of an optimization model that provides for the location of shelves and planograms under the conditions of category management. Only one of the directions of category management can be defined as an unresolved issue, namely the location of products.

The authors of paper [16] devised a research model based on a literature review and used structural equation modeling for data analysis, which contributes to category management. The results of the study indicate that changes in pri-

vate label sales penetration and category market share have little effect on its profitability. A key takeaway for retailers is the need for category managers to focus on all brands in their respective categories and not overemphasize private labels. This approach is quite appropriate to use in pharmacy retail management.

Work [17] describes the toolkit for the implementation of the category management system, such as Category Optimizer™ for justifying strategic and tactical decisions in the logistics supply by product groups and categories. It is relevant that this approach allows for optimization of logistics processes and warehouse storage of products or medical preparations, which is still not fully resolved.

Within the framework of the study, the process of teaching category management is also important, so in work [18] attention is focused on pharmaceutical professions. The pharmaceutical profession has evolved over the years from a traditional, drug-oriented, to a modern, patient-oriented one. Such approaches confirm that in pharmacy retail it is not only the management of product categories that is relevant but also the consideration of orientation to a certain segment of the consumer.

As a result of our review of the literature, it should be noted that in practice various variations and combinations of separate analytical methods are often used as part of a comprehensive study of the effectiveness of business processes of assortment management and pricing. As before, the expansion of the analytical toolkit of category management and its automation for use at the level of the pharmacy network is relevant, which could make it possible to quickly take weighted management decisions. A promising method is a cross-categorical analysis, based on the allocation of role groups by contribution to the gross income of the enterprise and the total amount of revenue [19]. The authors of [20] prove the relevance of cross-category analysis in connection with demographic changes that affect the formation of the market basket.

Thus, it is possible to generalize that certain areas of the category management system are used in pharmaceutical practice. Either assortment management or only certain principles of category management (end-to-end product category management, etc.) are studied. However, until now there has been no scientifically substantiated comprehensive approach to the management of organizational and socio-economic aspects of the functioning of pharmacy chains based on the category management methodology.

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### 3. The aim and objectives of the study

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The purpose of our study is to improve the diagnostic methodology of category management in pharmacy retail. This will make it possible to take managerial decisions regarding the components of category management, which must be optimized to ensure competitiveness in the presented market.

To achieve the goal, the following tasks were defined:

- to systematize the features of category management by building a strategic concept of the business model of a pharmacy retail enterprise;
- to carry out a comparative analysis of disagreements between specialists of the economic and pharmaceutical profiles in management issues;
- to justify the methodical approach to the evaluation of the pharmacy retail enterprise by building the MARS Category Management Profile.

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### 4. The study materials and methods

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The object of this study is the process to form a comprehensive methodical approach to the evaluation of category management in pharmacy retail. The main hypothesis of the research assumes that category management in pharmacy retail management should simplify business processes. Therefore, it is necessary to supplement the existing methods of assessment of category management, taking into account the tools of the integrated approach. The study is based on the use of scientifically based approaches, both in the field of category management and in the organization of pharmaceutical business, modern principles of marketing management and management strategies, principles of analysis and forecasting.

The work uses the following methods: systemic, structural, dynamic, cause-and-effect analysis. The system method was applied to build a concept of a business model of a pharmacy retail enterprise; analysis and generalization to build the MARS Category Management Profile. The expert survey method was used to determine the existing and desired state of category management at the enterprise; modeling for building an organizational model of functional interaction of specialists when implementing category management in pharmacy retail.

Analysis results were treated using Microsoft Office Excel. The research program fully reflects the structure and sequence of all research stages.

To test the reported scientific developments in November 2023 an expert survey was conducted in which 10 people participated (namely, 1 pharmacy manager, 5 assistant pharmacists, 2 pharmacists, and 2 managers) from the chain of pharmacies “Bazhayemo zdorov’ya” in Kyiv (Ukraine). The selected experts (specialists in the field of category management) gave voluntary consent to participate in the research trial and filled out the survey form in the format of an offline survey. In each questionnaire, the expert indicated consent to the processing of personal data and provided answers. Appropriately designed survey forms made it possible to build the “MARS category management profile” and to compare its existing and optimal states.

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### 5. Results of diagnosing category management in pharmacy retail

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#### 5.1. Systematization of the features of category management using the construction of a strategic concept of the business model of a pharmacy retail enterprise

The development of category management in various industries, and particularly in pharmacy, is associated with the influence of certain factors and the growth and globalization of pharmacy chains. The segmentation of the pharmaceutical market, the increase in the number of suppliers and intermediaries, the costs of maintaining the pharmaceutical business, the reduction of the profit of the operators of the pharmaceutical market, the development of sales technologies and the volume of information are also key influencing factors.

Peculiarities of pharmaceutical activity management in crisis periods are associated with growing economic risks and increased competition among the main market participants.

Category management can be considered an effective tool for managing the activities of pharmaceutical enterprises. Thanks to a fundamentally new approach to build-

ing an assortment policy and strengthening relations with suppliers, effective management makes it possible to reduce risks, reduce the level of unearned profit and be competitive during an economic crisis.

The transition to assortment management by product categories makes it possible to reduce the number of illiquid items, that is, to optimize product balances, increase the volume of sales and, ultimately, increase the margin of the pharmacy enterprise.

Categorical management in pharmacy is a complex methodology for managing the assortment of a pharmacy enterprise (pharmacy chain) based on an analysis of the real needs of the population. Certain segments of consumers have a need for medicinal products and pharmacy products grouped into groups based on similar consumer characteristics, which makes it possible to take into account the specifics of the company's operating conditions. In addition, universal recommendations of category management require adaptation to the working conditions of specific pharmaceutical enterprises. At the same time, it is important to take into account the peculiarities of their competitive environment and consumer demand.

In order to carry out a diagnosis of category management in pharmaceutical retail, we shall consider the general context of the enterprise's work by building a strategic concept of the business model (Fig. 1). Forming the strategic concept of the business model, we can observe that the effectiveness of assortment policy management, which is key in the activity of a retail enterprise, requires the systematization of certain resources and provides an opportunity to satisfy the needs of consumers of a fairly diverse segment. Therefore, the goal of category management in pharmacy retail is reduced to the maximum satisfaction of consumer needs in the necessary groups and categories of goods due to the effectiveness of cooperation with the manufacturer (distributor). Accordingly, category management in pharmaceutical enterprises solves the following tasks: categorization of medical and pharmaceutical products into assortment groups; determination of effective pricing policy and product positioning on the market; analysis of supply and demand in the pharmaceutical market with the formation of an optimal assortment of products that meets consumer expectations; optimization of warehouse stocks and product flows of medicines and medical products based on the development of an assortment core, as well as the sale of products in high demand at the best price on the market; optimization of financial management in each product category; monitoring of necessary marketing information; advertising and promotional programs for the promotion of products on the market, implementation, if necessary, of trade marketing and brand management tools; optimization of the entire supply chain of goods taking into account the interests of the manufacturer and retailer.

Dynamically changing business conditions, consumer demands and expectations, the transition to digitalization

require new flexible approaches to analysis and effective management decisions. That is why category management in matters of assortment policy of the enterprise is becoming more and more relevant and in demand.

<p><i>Main areas of activity.</i></p> <p>Sale of medicines, meeting the needs of the population and health care institutions in medical devices/preparations</p>	<p><i>Values of the enterprise in the market.</i></p> <p>Value for money, additional service in service. Highly qualified consumer advice, availability of a pharmacy or network website, online service, and the ability to order medicines, compliance with feedback.</p>	<p><i>Ways to attract the consumer.</i></p> <p>Advertising in the media, word of mouth, consumer feedback on the Internet</p>	<p><i>Consumer segmentation.</i></p> <p>According to demographic and geographical criteria, socio-economic, commodity nomenclature and peculiarities of the sale of medicines (for example, by prescription)</p>
<p><i>Key resources.</i></p> <p>Medical, sanitary, and cosmetic goods, personnel, material and technical base</p>		<p><i>Communication channels.</i> Mass media, internal communications at the enterprise or in the pharmacy chain, communications with government agencies</p>	
<p><i>Main business partners.</i></p> <p>Suppliers of medicines</p>			
<p><i>Composition of operating expenses.</i></p> <p>Expenses for the purchase of goods, logistics, staff salaries, utilities</p>		<p><i>Composition of income.</i> Income from retail and wholesale sales of medicines</p>	

Fig. 1. Strategic concept of the business model of a pharmacy retail enterprise

### 5. 2. Comparative analysis of disagreements between economic and pharmaceutical specialists in managerial issues

Pharmacy retail management is impossible without qualified personnel. Training of managers for the field of pharmaceutical business takes place within educational programs. Therefore, such categories of positions as category manager, manager or manager of a pharmacy or pharmacy warehouse, specialist-analyst, and sales representative are able to achieve high results in the process of economic activity. This is possible due to the optimization of purchases, the construction of an effective system of logistics, marketing, and sales through the pharmacy network. It should also be noted that currently there are certain disagreements between medical specialists and pharmacy management. Therefore, today's innovative approaches require a new perspective on understanding the role of the category manager in pharmacy chains. Such a specialist with a pharmaceutical education will be able to combine the skills of economic analysis and focus on the implementation of the social functions of pharmaceutical care in his professional activity.

When implementing category management tools in pharmacy retail, the functions of analysis and tactical management of consumer groups of the product nomenclature cause disputes between a pharmacist who has a medical education and a category manager who is focused on managerial business processes. In Table 1, we shall compare the differences between the pharmacist (pharmacist's assistant) and the category manager, as this comparison will help take into account these features when forming the methodology for evaluating category management in pharmacy retail.



Table 1

The most frequent disagreements between economic and pharmaceutical experts in management issues (pharmacy retail)

Conflict zone	Category manager's vision	The pharmacist's vision
Assortment management as a key activity of enterprises in pharmacy retail	Focus on cross-category analysis in assortment management (basic, periodic, priority, convenient and unique) products, ABC analysis and XYZ analysis, LFL analysis, adherence to clear and strict product sales plans	The widest assortment, providing a large number of well-circulating low-profit goods, individual response to the natural demand of consumers, maximum filling with product groups and categories regardless of product roles
Principle of sale of medicines and other pharmacy products to consumers/population	Consumer portfolio for each standard consumer request with mandatory upselling, building a "tree" of purchasing decisions, segmenting consumers according to various characteristics	Personalized approach to consumers, choice between original and generic medicines in terms of cost and effectiveness, full and high-quality pharmaceutical consulting, segmentation of consumers from a medical point of view, not from a marketing point of view
Product display and merchandising	Application of approaches to the construction of a planogram, the layout of drugs based on the calculations of ABC analysis with a merchandising index and marketing agreements with a supplier or pharmaceutical company	Display based on demand frequency, visually appealing to visitors and convenient for pharmaceutical staff

Having considered the possible areas of conflict, we consider it urgent to involve a specialist who is able to choose and use modern pharmaceutical management tools. This will make it possible to optimize the commercial and produc-

tion activities of pharmaceutical companies and pharmacy chains, to form the assortment and price policy of enterprises for medicinal products, to develop strategies for the development of the pharmaceutical business.

Taking into account the purpose and tasks of category management, as well as the views of a specialist in economic and pharmaceutical direction in pharmacy retail, we suggest using the methodology "Profile of category management MARS". Such diagnostics will make it possible to measure categorical management in two states and identify "bottlenecks".

5.3. Justification of the methodical approach to the evaluation of the pharmacy retail enterprise

Taking into account the described components of the strategic concept of the business model, as well as disagreements between specialists of economic and pharmaceutical direction in management issues, a methodical approach was formed. To conduct the research, experts are offered a survey form (Table 2), where the indicated areas are presented for analysis in 4 components: M – mission, A – analysis, R – resource, S – strategy.

The study of the components of "M" for each of the groups will make it possible to evaluate organizational measures and decision-making processes in category management in accordance with the general mission of the pharmacy retail enterprise. Segment "A" provides an analysis of research approaches and certain methods that make it possible to assess the state of category management, carry out diagnostics and relevant calculations for planning and management. Enterprise activity is impossible without resource management, and therefore it is appropriate to evaluate them in the "R" segment. Allocating resources, carrying out analysis, and achieving the mission require the formation of changes and prospects for the future, and therefore it is urgent to predict strategic directions in the "S" segment (Table 3).

Table 2

Questionnaire for building the MARS Category Management Profile

Profile component	Characteristics of category management factors	Current state	Optimal condition
1	2	3	4
1. Diagnostics of organizational processes of category management in pharmacy retail			
M	Increasing sales and profit of the pharmacy retail enterprise by maximally meeting the needs of consumers	For each component of the profile, the expert determines a score-assessment of the current state of organizational processes in accordance with the presented characteristic	For each component of the profile, the expert determines the score of the optimal state of organizational processes in accordance with the presented characteristic
A	Monitoring of existing and potential competitors		
R	Material and technical support, personnel, enterprise structure, capital		
S	Formation of the strategic canvas of the business model of the pharmaceutical retail enterprise		
Total, points		The sum of points is calculated	The sum of points is calculated
2. Product category management			
M	Definition of product categories in pharmacy retail	For each component of the profile, the expert determines a score-assessment of the current state of management of the product category in accordance with the presented characteristic	For each component of the profile, the expert determines the score-assessment of the optimal state of management of the product category in accordance with the presented characteristic
A	Analysis of market prospects and consumer behavior to determine the place of a product category, analysis of the potential of a product category in pharmacy retail, evaluation, monitoring and correction of product categories, implementation of cross-category analysis		
R	Provision of product categories for all roles (basic, periodic, priority, convenient and unique), not just for some		
S	Formation of goods in a group based on the data of the purchase decision tree		
Total, points		The sum of points is calculated	The sum of points is calculated

Continuation of Table 2

1	2	3	4
3. Assortment balancing			
M	Forming the assortment by width and depth of product groups and categories	For each component of the profile, the expert determines the score of the existing state of balancing the assortment in accordance with the presented characteristic	For each component of the profile, the expert determines the score of the optimal state of assortment balancing in accordance with the presented characteristic
A	Conducting a comprehensive market analysis, forming an assortment portfolio, conducting ABC analysis and XYZ analysis, LFL analysis		
R	A certain number of product groups and product categories		
S	Strategic alternatives for the development of existing and new product categories		
Total, points		The sum of points is calculated	The sum of points is calculated
4. Management of sales price policy and price setting			
M	Adherence to pricing rules within the product category	For each component of the profile, the expert determines the score-assessment of the current state of pricing policy management in accordance with the presented characteristic	For each component of the profile, the expert determines the score of the optimal state of pricing policy management in accordance with the presented characteristic
A	Carrying out MRA analysis: identification of outsider goods and leading goods of the product category: margin-sales analysis, identification of product shortages and product surpluses		
R	Data from reports and studies of the enterprise's activities		
S	Monitoring and comparative analysis of prices for the range of products in the product category		
Total, points		The sum of points is calculated	The sum of points is calculated
5. Interaction with suppliers and merchandising			
M	Creation of consumer values together with the supplier	For each component of the profile, the expert determines the score of the existing state of interaction with the supplier in accordance with the presented characteristic	For each component of the profile, the expert determines the score of the optimal state of interaction with the supplier in accordance with the presented characteristic
A	Building a "tree" of purchase decisions; forming a matrix of desires; development of a map of consumer perception of categorical product positions		
R	Logistics processes, a system for creating automated planograms		
S	Constructive interaction in the system: consumer – pharmacy retail enterprise – manufacturer (supplier) of goods		
Total, points		The sum of points is calculated	The sum of points is calculated
6. Implementation of the competencies of a category manager in the personnel management system			
M	A category manager, as a specialist, must understand the relationship between the mission and values of a pharmaceutical company in order to implement effective category management	For each component of the profile, the expert determines a score-assessment of the current state of implementation of the competencies of the category manager in accordance with the presented characteristic	For each component of the profile, the expert determines the score-assessment of the optimal state of implementation of the competencies of the category manager in accordance with the presented characteristic
A	Conducting a personnel audit, testing specialists for compliance with the skills and knowledge of category management		
R	Professional development and coaching of personnel, including category managers		
S	A category management specialist must be an innovator to create and implement new ideas		
Total, points		The sum of points is calculated	The sum of points is calculated
7. Tactical Decisions in Category Management			
M	Development of a product category development program: introduction of new products, withdrawal from the assortment, stability program	For each component of the profile, the expert determines a score-assessment of the current state of tactical decisions in accordance with the presented characteristic	For each component of the profile, the expert determines the score of the optimal state of tactical decisions in accordance with the presented characteristic
A	Analysis of turnover and inventory		
R	Modern information technologies and software products for the work of a category manager		
S	Choosing a competitive strategy for a pharmacy retail enterprise		
Total, points		The sum of points is calculated	The sum of points is calculated
Total by groups, points		100	100

Note: Working with the survey form involves the allocation of 100 points for each component (a total of 28 components for building a profile). Also, it is necessary to determine the intermediate score of the existing and desired state for each of the seven presented groups

As a result of the brainstorming, each expert was able to assess the situation from the standpoint of their competences and work experience. The synergistic effect made it possible to generalize the different views of experts and to form effective

proposals regarding the diagnosis of category management of the pharmacy. Meanwhile, the total effect of each of the components in the existing and optimal conditions was calculated and is given in Table 4.

Table 3

Generalized results of the survey of experts for the construction of the “MARS Category Management Profile”

Profile component	Current state	Optimal condition	Generalized expert opinion as a result of brainstorming
1. Diagnostics of organizational processes of category management in pharmacy retail			
M	5.6	3.6	The optimal state implies the same performance of tasks related to the purpose, analysis, resource management and strategy of the pharmacy, since the organizational processes of category management cannot single out one of the directions, as in the current state. Achieving the goal in this direction is possible through timely analysis, rational use of resources and adherence to strategic directions or vision
A	2.4	3.6	
R	3.1	3.4	
S	2.9	3.5	
Total, points	14	14.1	
2. Product category management			
M	5	3.2	The formation of product categories in a pharmacy primarily involves the analysis of existing categories and their methods of implementation. Focusing on cross-category analysis and management of product categories by building a “tree” of purchasing decisions will lead directly to the definition of the correct product categories in pharmacy retail
A	2.3	4.5	
R	3.5	3.3	
S	2.9	3.5	
Total, points	13.7	14.5	
3. Assortment balancing			
M	4.9	4.2	Having decided on the product categories in pharmacy management, there is a need for systematization by forming an assortment in width and depth. Therefore, the goal is important in the existing and desired states. As a result of its achievement, it is necessary to analyze the assortment, focus on the strategy and manage resources according to the rules, namely medicines
A	3.1	3.7	
R	2.6	3.3	
S	3.5	3	
Total, points	14.1	14.2	
4. Sales pricing management and pricing			
M	5.9	3.9	Given the conditions of price competition and the number of pharmacy retail enterprises, it is not enough to focus on the pricing rules as much as possible, as we see in the current state. For effective management of pricing policy, it is necessary to conduct analysis in a timely manner, such as sales analysis for resource management, namely medicines. This will allow you to comply with the rules for setting prices on favorable terms, both for the pharmacy and for the consumer
A	2.4	3.6	
R	3.1	3.2	
S	3.3	2.8	
Total, points	14.7	13.5	
5. Interaction with suppliers and merchandising			
M	5.1	3.9	The creation of consumer values is possible only if there is a well-formed group of suppliers of medicines. Strategic vision and market research will allow you to reach a certain goal faster than an unquestioning focus only on it
A	3.8	4.3	
R	2.9	2.8	
S	2.7	3.4	
Total, points	14.5	14.4	
6. Implementation of the competencies of a category manager in the personnel management system			
M	4.4	4.2	The professional knowledge and skills of the category manager will allow for effective management of the pharmacy, and therefore the goal will remain a priority in both states. What methods a category manager will use to formulate a strategy, analyze or manage resources is currently not as important as his list of competencies
A	3.4	3.9	
R	3.1	3.2	
S	3.5	3	
Total, points	14.4	14.3	
7. Tactical decisions in category management			
M	4.8	4.4	Tactical decisions should be strategy-oriented, but in the conditions of war and unstable economic situation in the country in optimal condition, the category management of a pharmacy assumes the availability of short-term plans for effective work, which is provided for by the purpose and analysis of the external market environment
A	3.3	4.4	
R	2.7	2.9	
S	3.8	3.3	
Total, points	14.6	15	
Total, points	100	100	As a result of adhering to the focus on the optimal condition, pharmacy retail enterprises will be more effective in organizing category management management

Source: 10 people (namely, 1 pharmacy manager, 5 assistant pharmacists, 2 pharmacists, and 2 managers) from the “Bazhayemo zdorov’ya” chain of pharmacies in the city of Kyiv participated in the expert survey. That made it possible to determine the average score for each component of category management.

Our calculations show that in the existing state “M” the score is almost 36 points, while in the optimal state it is 27.4 points. In turn, the scores for profile “A” are 21 and 28 points, respectively. The “R” profile does not have such significant differences and is 21 points and 22.1 points, respectively, while the “S” profile has the smallest difference and is equal to 22.5 points in both states.

According to the calculations of the current and optimal conditions (Table 4) of category management in the chain of pharmacies “Bazhayemo zdorov’ya”, Fig. 2 shows a generalized profile.

We can conclude that for effective category management it will be relevant to focus on analysis, and only then on the goal. It is precisely the rightly chosen methodical approaches

to the analysis of the areas of category management that will ensure the achievement of the set goal. When carrying out the analysis, it will be appropriate to take into account the strategic perspectives of management and work with resource provision.

Due to the different level of the technological base and resource capabilities of pharmacies or pharmacy chains, there is no universal ratio of efficiency and costs for the procedure of effective category management in an optimal state. As a result of the research, it was established that the key in the category management of pharmacy retail is the combination of functional interaction of specialists of the opposite direction, cooperation with the participants of the external environment and segmentation of consumers. Taking into account such features, we shall present an organizational model of functional interaction of specialists in the implementation of category management in pharmacy retail (Fig. 3).

Our model shows that specialists form the retail assortment of the network in accordance with a single product classifier, commercial offers of suppliers and the specifics of the real need for medicinal products. The key directions of the formation of category management are determined by the influence of the information space of the pharmaceutical market and, in particular, the structure of drug prescriptions.

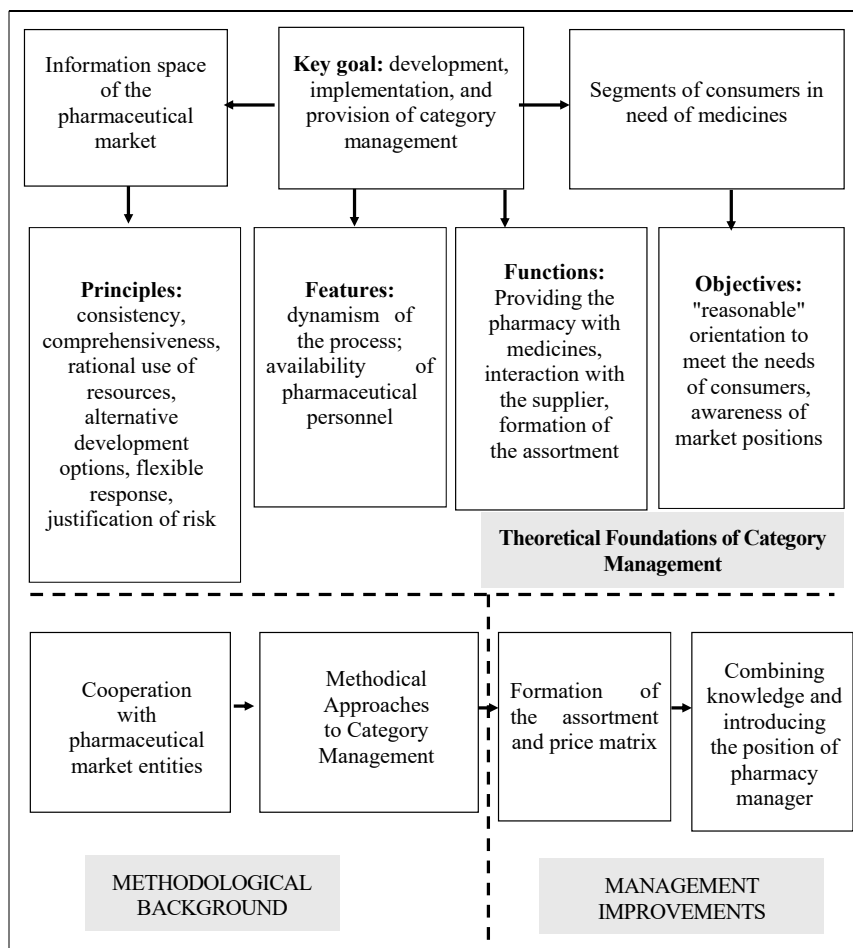


Fig. 3. Organizational model of functional interaction of specialists in the implementation of category management in pharmacy retail

Table 4  
Total result of the components of the “MARS Category Management Profile”

Profile	Current status, points	Optimal condition, points	Deviations, points
M	35.7	27.4	-8.3
A	20.7	28	+7.3
R	21	22.1	+1.1
S	22.6	22.5	-0.1
Total	100	100	-

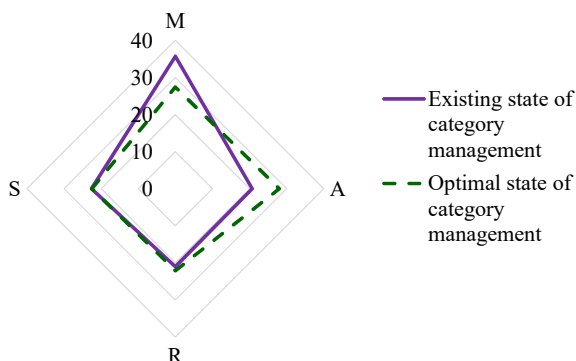


Fig. 2. Comparison of profiles of the existing and optimal state of category management

## 6. Discussion of results of category management diagnostics in pharmacy retail

The construction of a strategic concept of the business model of a pharmacy retail enterprise (Fig. 1) makes it possible to identify shortcomings in the organization of the work of pharmacies. When segmenting consumers, one should take into account the peculiarities of the pharmaceutical market, which are described in [21], in which the possibility of product categorization, which includes production, is defined. The authors selected such categories as dietary supplements, medicinal products, medical cosmetics, hygiene products and medical products, including medical knitwear, children's goods, and medical equipment. This will make it possible to substantiate the information space of the pharmaceutical market, which is key in category management.

Categorical management does not affect the volume and nature of drug prescriptions but allows prompt response to the changing requests of patients and their characteristics related to individual sensitivity to medications. In order to increase the effectiveness of category management, it is important to take into account the postulates described in [22]. The authors substantiated that the consumer is a key stakeholder, the “mix” of product categories ensures assortment management, the market needs and the interaction between the consumer and the retailer are relevant.



Considered in Table 1, the disagreements between specialists of economic and pharmaceutical direction in management issues allowed us to build an organizational model of functional interaction of specialists in the implementation of category management in pharmacy retail (Fig. 3). The authors of work [23] prove the advantages of pharmacoeconomic in pharmaceutical activity. Such views allow improving the analytical capabilities of categorical management, taking into account the application of pharmacoeconomic principles with the help of quantitative, cross-sectional, and descriptive design.

Our survey form for building the “MARS Category Management Profile” (Table 2) makes it possible to assess the existing and optimal state of category management as a whole, and not only in individual directions. The sections of the survey form are consistent with work [6] because the study of product categories is taken into account. Also, a study of cooperation between a supplier of pharmaceuticals and a retailer is provided, which is substantiated in works [12, 13]. Methods of analysis, as ABC-VED described in works [8–11], ECR method [14] and cross-category analysis [19, 20] are taken into account in component “A” of the “MARS Category Management Profile”.

As a result of summarizing the data of the expert survey (Table 3), changes were formed that will ensure the improvement of the effectiveness of the work of pharmacies in an optimal condition. The total effect of the calculations (Table 4) shows that, in the optimal state, orientation to mission “M” will decrease by 8.3 points, and to analysis “A” will increase by 7.3 points, respectively. This indicates that the diagnosis of category management requires the use of the aforementioned methods and will contribute to obtaining not only qualitative but also quantitative results.

According to the calculations in Table 5, the “MARS category management profile” (Fig. 2) is built, on which we can observe that in the current state, category management is oriented towards the mission, and in the desired one, towards analysis. That is why, for the organization of effective category management, it is necessary to adhere to the organizational model of functional interaction of specialists when implementing category management in pharmacy retail (Fig. 3). The scheme of distribution of roles among participants of the 3D category management system presented in [24] will allow structuring consumer segments in need of medicinal products. Such a division of roles will establish a system of assortment formation and allow building a business process of supplying the necessary goods.

Under today's conditions, the chain of pharmacies is a certain business ecosystem, and therefore possible risks in the ecosystem market should be taken into account and predicted. In [25], a risk matrix was built, which is an effective tool that helps analyze the probability of potential risk for optimizing the operation of the digital ecosystem. Work [26] describes the relevance and practical aspects of the implementation of digital technologies in the activities of enterprises and, in particular, production management, which will improve the cooperation of pharmacies with direct manufacturers of medicinal products. The organizational model of interaction can also be supplemented by the division of tasks in the interprofessional medication management program described in [27]. Complying with such tasks will allow making certain corrections and creating an up-to-date assortment of medical drugs in pharmacy retail.

Different from previous studies [9, 10, 15, 17, 19, 20] is that the described factors of category management are

structured for the study of pharmacy retail. They allow us not only to assess the real state of the enterprise but also develop an optimal plan for its future development, taking into account the tools of a comprehensive approach, and not just individual areas of categorical management.

The effect of optimal category management provides for the acceleration of the process of planning the volume and structure of purchases and, as a result, the possibility of flexible expansion and narrowing of the sales lines of medical drugs, which will ultimately contribute to the improvement of the quality of pharmaceutical care.

The limitation of our research is that the collection of data for the diagnosis of category management (Table 2) is carried out by filling out questionnaires by experts and processing a large amount of data. This may require the use of an additional set of resources (time, professional knowledge of information technologies, availability of software, etc.). Also, the survey form provides for the assessment of many components to build a category management profile, which can complicate the calculation, which must be equal to 100 points in total.

The development of this study is that category management is a new, but rather promising tool for enterprise capitalization, which has recently been gaining momentum in various areas of business. Therefore, there is a need for the formation of methodical approaches to the diagnosis of category management in pharmacy retail. This makes it possible to accumulate significant resources, which, in the future, will contribute to the efficient organization of the company's work. The tools reported in the current paper regarding the analysis of the profile of category management could be changed depending on various circumstances, namely changes in the market situation, that is, the business entity should adapt to real-time conditions.

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## 7. Conclusions

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1. The features of category management were systematized with the help of building a strategic concept of the business model of a pharmacy retail enterprise. It has been established that the needs of buyers are increasingly oriented not to a single product but to a complex value perception and purchase of a group of interconnected products. Pharmacy chains, by trial and error, are making attempts to adjust the assortment policy due to the partial implementation of category management. However, the insufficiency and fragmentation of research in the field of category management, as well as the existing models of its implementation in the assortment policy, do not allow for its effective implementation. This requires the formation of a comprehensive approach to the assessment of situations in the existing and optimal conditions. This approach will make it possible to eliminate shortcomings and ensure the operation of the strategic concept of the business model of the pharmacy retail enterprise.

2. Differences between economic and pharmaceutical professionals in managerial issues allowed us to form an organizational model for the purpose of effective category management. For the full participation of category managers in the processes of building patient-oriented assortment and price matrices, specialists are forced to master the basics of pharmaceutical business organization and rational pharmacotherapy at the level of secondary professional education.

Also, there is a need for the ability to correctly interact with managerial pharmaceutical staff (pharmacy manager). This allows solving the complexities of the enterprise in the pharmaceutical market, where the methodology of category management requires a specific interpretation, and, as a result, the training of category managers with a basic higher pharmaceutical education. That is why the introduction of the position of pharmacist-manager is a key result of improving management.

3. The methodical approach “MARS Category Management Profile” has been substantiated, which makes it possible to comprehensively and systematically evaluate the category management of the pharmacy. Thus, the diagnosis of organizational processes contributes to the adoption of effective management decisions in pharmacy management. Product category management provides management of customer loyalty, turnover, gross revenue, floor space, inventory, and human resources. Balancing the assortment contributes to the rational filling of product categories according to the width and depth of positions. Management of the price policy consists in maintaining the actual prices and their regulation under the conditions of the market economy. Interaction with suppliers and merchandising makes it possible to organize the supply of the necessary product groups and their correct location in order to attract the consumer. Fulfilling the competencies of a category manager requires professional knowledge and skills in promoting and selling goods of certain categories. Tactical solutions in category management make it possible to form a short-term pharmacy development program and systematize the directions of work in pharmacy management.

Our methodology was tested in a real network of pharmacies and made it possible to determine the prospects for the formation of the optimal state of category management. The components of the category management profile have certain differences in the quantitative assessment of results,

namely, the “M” score in the current state is 8.3 points higher than in the optimal one. In turn, the rating for profile “A” in the current state decreases by 7.3 points. Profile “R” and “S” have no significant differences and are kept within 1 point. Thus, the recommendations are to expand the scope of application of category management for centralized analysis and management of the assortment of pharmacy enterprises. This could contribute to the further improvement of the technologies of the rational use of medicines, the balancing of the assortment policy, as well as the increase of consumer loyalty to the brand of the pharmacy chain.

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#### Conflicts of interest

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The authors declare that they have no conflicts of interest in relation to the current study, including financial, personal, authorship, or any other, that could affect the study and the results reported in this paper.

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#### Funding

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The study was conducted without financial support.

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#### Data availability

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All data are available in the main text of the manuscript.

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#### Use of artificial intelligence

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The authors confirm that they did not use artificial intelligence technologies when creating the current work.

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