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DETERMINING DIRECTIONS FOR TRANSFORMING THE ORGANIZATION'S COMPETENCE STRUCTURE DEPENDING ON ITS LIFE CYCLE STAGE IN THE CONTEXT OF ENABLING EFFECTIVE OPERATION IN THE MARKET

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The object of research is the process of functioning of organizations at different stages of the life cycle (LC). Papers addressing the management of organizations ignore the need for them to acquire competence to successfully solve the tasks of each stage. This directed the research to the definition of priority management tasks, determined by the nature of activity at different stages of LC, and the competencies necessary for their solution. The directions of the transformation of the structure of organizational competence due to the change in the frequency of reference by heads of organizations to its members in the process of solving tasks have been determined. The importance of functional and basic component competencies at the birth stage was noted (36.7 and 38.7 % of reference in the total number). The increase in the frequency of reference to the competencies of synergistic, key, and strategic components (3.4; 2.2; 1.66 times) at the stage of intensive growth is explained by the organization gaining authority in business circles, the possibility of its use for lobbying organizational interests. Among the competences at the stage of maturity, representatives of the synergistic and functional components prevail – the increase in the frequency of reference by 1.44 and 1.1 times, respectively. The share of reference to the competences of the basic component is also high (40 %). At the stage of decline, functional and basic competencies remained important (36.9 and 39.5 %), in particular, the competencies of managers in ensuring the most painless liquidation of the organization.

A distinctive feature of the study is the addition of the procedure for determining the stage of LC with a list of priority tasks and the competencies necessary for their solution. This made it possible to understand the directions of the transformation of competence, to identify the need for the development of competences due to the organization's position on the life cycle curve or its change

Keywords: competent organization, organization competencies, organization development, organization management, management task

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1. Introduction

Effective activity of organizations under conditions of unpredictability and dynamism of market processes, high level of competition, implies their constant development. This is a natural organizational state that arises regardless of the chosen activity strategy and management paradigm. That is, by changing planned or spontaneously, successively passing through the stages of the life cycle (LC) and achieving intermediate development goals, the organization can significantly extend the duration of its successful functioning. The different nature of activity at different stages of LC creates a different list of management tasks that must be solved as a priority. The structure of organizational competence requires a corresponding change, determining the greater importance of some of its components (organizational competences) over others. Determining the list of relevant competencies for solving the priority management tasks of each stage of LC, the need for their development or additional acquisition for the implementation of effective organizational activities are important management tasks in a dynamic competitive environment.

Scientific research into this area is important because understanding the essential characteristics and directions of formation of a rational structure of organizational competence is the basis of activity and an important factor in gaining competitive advantages in foreign and domestic markets. The hierarchical and dynamism of its nature, proven by previous studies [1–3], requires the prioritization of individual components of the organization's competence, determined by its place on the curve of the life cycle, therefore, the actualization of certain management tasks. This will provide an opportunity to form new combinations and configurations of competencies, the use of which in activities will allow the organization

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to increase the probability of market success by creating unique competitive advantages. Therefore, it is expedient to determine the priority management tasks, taking into account the peculiarities of the state and nature of the organization's activity at each of the stages of LC, and the competencies necessary for their solution. The logical consequence of this will be the transformation of the structure of organizational competence. Research results are needed in practice because understanding the list of necessary competencies, directions for their development or additional acquisition, contributes to the formation of the organization's potential, increasing the level of its ability to counteract negative external influences, determining sustainability and viability in the long term.

2. Literature review and problem statement

Scientists who are trying to develop an algorithm for building an organization effective under dynamic market conditions are actively discussing the issue of competencies and competence, focusing, however, on the need to increase the level of competence of employees as a key factor in this process. Thus, the authors in work [4] consider the main business problem of modern organizations to be the mismatch of the professional competencies of specialists with the business environment and the needs of the labor market. This limits the possibilities of attracting highly qualified, competent employees to Ukrainian organizations, negatively affecting the level of efficiency of their activities. The work analyzed and systematized the key competencies of specialists, determined the prospects for their development in view of current trends in the labor market. However, the relationship between individual competencies and the organization's ability to become competent under modern transformational conditions has not been revealed. Other scientists, in their desire to build a universal model of competencies for employees, limited themselves only to the remote format of work organization [5]. The presented conclusions regarding the formation of key competencies for the successful activity of a specialist, which are based on the results of an expert survey of 106 respondents, are valuable. But one should note the impossibility of their full adaptation to modern conditions colored by intensive globalization and European integration processes. The remote work format is a forced and, in most cases, undesirable form of work organization, which is characterized by the actualization of specific problems and tasks that may not arise under normal conditions. Therefore, the formulated conclusions and obtained results need to be developed and refined.

Work [6] investigated the influence of the competence of specialists on their ability to perform work tasks in accordance with the standards adopted in the country. The thorough empirical research is aimed at determining the level of competence of accounting specialists in accordance with the International Education Standards (IES) in the context of the impact on their ability to prepare financial statements of enterprises. But the concentration of attention on only one category of specialists does not make it possible to fully use scientific conclusions and recommendations to justify ways of increasing the level of competence of the organization as a whole. In work [7], they insisted on the need to create competence centers in organizations to overcome the difficulties and challenges of the digital transformation of the economy. Placing great hopes on such centers in terms of understanding new relationships between technology, people, and organization, the authors pointed out the possibility of creating new configurations of organizational competencies that are critical to the success of any corporate system. However, the obtained valuable results are not distinguished by a high degree of universality because they concentrate mainly on the most necessary competencies under the conditions of digitalization of the economy, leaving aside the rest, no less important competencies. The presence of a developed theoretical basis for the study of the necessary competencies in future specialists has been revealed, which limits the scientific field of research exclusively to the field of education. Attention is drawn to research aimed at determining the attitude of teachers and students to entrepreneurial competencies, the importance of their acquisition and development [8]. The results of the survey of a significant number of respondents allowed the authors to form a list of 10 key business competencies, but at the same time to reveal a discrepancy in the views of students and teachers on the importance of almost half of them. Such a different perception and lack of consensus makes clear the reasons for the non-compliance of a large share of future specialists with the requirements of employers, which causes certain problems in the implementation of effective organizational activities. There is an opinion that some problems in the formation of organizational competence are caused by a lack of understanding by managers and direct executors of its structure and the importance of individual components at different stages of the organization's life cycle. The results of the previous research are an indirect confirmation of this point of view because it is difficult to form a future specialist with a wide list of business competencies in the presence of radical differences in views on the importance of their acquisition. Therefore, the conclusions of scientists in [8] are valuable but insufficient within the scope of this study because they reveal gaps in relation to only one component of the organization's competence – individual.

The study of the level of competence of the organization and the prerequisite for its improvement usually takes place in the context of ensuring the effectiveness of its functioning on the market. Therefore, the scientific works of specialists in the field of management of organizations, who were engaged in the study of the conditions of their functioning and the changes in organizational activity due to this, were taken into account.

The issue of finding ways to improve the activities of organizations, in particular, representatives of certain areas of the economy, remains popular for discussion in scientific circles. Specialists, actively discussing various ways of achieving the desired level of key indicators, ignore their internal prerequisites and factors. In [9], the authors evaluated the performance of small and medium-sized enterprises of the People's Republic of China with the determination of the reasons for the slowdown in the growth of the main indicators. While noting the different trends in changes in indicators among representatives of medium-sized and small businesses, the authors did not associate this with a different level of organizational competence, therefore, different opportunities for achieving entrepreneurial success. An interesting approach to the evaluation of indicators, which involves the use of the EVA (economic added value) evaluation system, would be advisable to supplement with an analysis of the relationship between the list of available organizational competencies, the level of their manifestation in the activities of organizations and its effectiveness. This would make it possible to make a more thorough choice of the strategy for further functioning, taking into account not only the ac-

tion of objective and subjective factors but also the achieved level of organizational competence. Some scientists associate the prospects of successful functioning of organizations exclusively with effective management. In [10], the authors insist on the need to implement an effective time management system as a guarantee of increasing the efficiency of organizational activities by supporting the decision-making process. The algorithm presented in the work for identifying and solving actual problems, supplemented by tracking the time spent, analyzing results, and identifying "bottlenecks", is, according to scientists, a prerequisite for making effective and timely management decisions. Other scientists [11] determined directions for increasing profitability by evaluating the influence of working capital indicators on the profit of manufacturing companies in Kosovo by means of multiple regression analysis. That is, the main attention of scientists was focused on the need to improve the management of organizations, in particular, in the part of working capital management, as a prerequisite for ensuring the desired amount of profit. However, both effective time management and working capital management are, in the opinion of the authors, a manifestation of organizational competencies of a certain hierarchical level [2]. It is their development, along with the development of competencies at other levels, which allows organizations to achieve the desired results.

Summarizing, it is appropriate to note that the above scientific works can be conditionally divided into two groups. The first [4–8] draw attention to the problems of individual competence development, without connecting them, however, with organizational level competences and without investigating their influence on the formation of the organization's general level of competence. The second [9–11] concentrate on the analysis of the main indicators of the organizations' activity, determining on this basis the ways of their improvement, mainly related to the improvement of the management system. But none of the reviewed works of the second group investigate advanced management technologies, the availability of experience, knowledge, and skills in their use, as well as the financial possibility of their implementation, as signs of organizational competence. There were also no works linking competence as an indicator of the achievement of a set of competencies at the level of manifestation necessary for gaining competitive advantages in the market, and the prospect of obtaining high results of organizational activity.

Since competence is formed through the development and transition from the competences of one hierarchical level to another, higher level, that is, it differs in the dynamism of the structure [2], it is useful to study the directions of its transformation according to the stages of the organizational structure. The change in the composition of the necessary organizational competences, due to the change in the priority of management tasks at each stage of the organization's residential complex, is a prerequisite for their effective resolution, the achievement of intermediate activity goals and the acquisition of the status of a competent organization in the modern market.

3. The aim and objectives of the study

The purpose of our study is to determine the directions of transformation of the organization's competence structure, caused by a change in the stage of its LC. This will increase the probability of successfully solving the management tasks of each stage and the effective functioning of organizations in the market.

To achieve the goal, the following tasks were set:

– to determine the stage of the organization's LC;

– to determine priority management tasks predetermined by the position of the organization on the curve of LC;

– to determine the necessary competences at the stages of the organization's LC by counting the frequency of reference to them in the process of solving management tasks.

4. The study materials and methods

The object of our study is the process of functioning of organizations at different stages of LC. The subject of the study is a list of management tasks at each stage of the organization's LC and the competencies required for their solution. The working hypothesis of the study is as follows: the structure of competence is transformed according to the stages of the organization's LC, which is due to the change of the dominant management problem at each stage and the priority of management tasks.

The research procedure is conditionally divided into three stages. At the first stage, the stage of LC of organizations of various sectors of activity was determined based on the analysis of financial statements and the calculation of the amount of cash flow from the main activity (ensuring the stability of the organization's activity), from investment activity (an indicator of the organization's adaptability to competitive changes) and from financial activity (an illustration of financial flexibility) activities of the organization) [12–14]. The main characteristics of cash flows at various stages of the organization's LC are given in Table 1.

Table 1

Changes in the characteristics of the organization's cash flows at different stages of LC

Stage/type of cash flow	Birth	Intensive growth (development)	Maturity (stability)	Decline (liquidation)
Investment cash flow	Determined by the need of the structure and long-term assets, therefore has the largest amount; the cash flow value is negative	The need to attract additional cash flows to ensure growth; the cash flow value is negative	Formation of a dispersed structure of own capital; can have a positive or negative cash flow value	Additional external income for continued operation; the cash flow value is positive
Financial cash flow	The main financing channel; the cash flow value is positive	The need to finance rapid growth; the cash flow value is positive	Exiting the liquidity crisis; the value can have a positive or negative cash flow value depending on the indicators of the investment flow	Negative dynamics of cash flows; the cash flow value is negative
Operating cash flow	Insufficient operating cash flow; the cash flow value is negative	A significant jump in cash flow; the cash flow value is positive	Stable cash flow; the cash flow value is positive	Negative dynamics of cash flows; the cash flow value is negative

The next step of the first stage of determining the stage of the organization's LC was the calculation of LC indicators, proposed by the authors in [15]. Scientists prove the expediency of using quantitative indicators of the organization's LC, among which, in particular, the following are selected: growth rates of income from sales of products (x_1) (as an indicator of expansion or contraction of the organization's activities on the market, i.e., its market position, because it indicates the presence of consumer demand for products), the rate of growth of the value of average annual assets (x_2) (as an indicator of the scale of the organization's activities, the degree of aggressiveness of the policy regarding the increase of assets) and the rate of growth of personnel costs (x_3) (which reflects the increase in the size of the organization, makes it possible to assess the effectiveness of personnel decisions, which determines its development) [15, 16]. To simplify the calculation, it is proposed to reduce them to a single aggregated indicator of dynamics (AID) using the definition of the geometric mean (1) [15, 17]:

$$\tilde{x} = \left(\prod_{i=1}^{n} x_i\right)^{\frac{1}{n}} = \sqrt[n]{x_1 \times x_2 \times \ldots x_n} = \left(x_1 \times x_2 \times \ldots x_n\right)^{\frac{1}{n}}, \quad (1)$$

where x_1 is the growth rate of income from product sales, %;

x_2 – average annual asset value growth rates, %;

x_3 – growth rate of personnel costs, %.

Demarcation of the stages of LC occurs on the basis of the economic characteristics of each stage of LC [15, 17]:

– stage of birth – the rate of growth of AID is less than 100 %, and the period of operation of the organization is from 1 to 2 years;

– stage of intensive growth (formation) – growth rates of more than 120 % due to accelerated growth of indicators;

– stage of maturity (stability) – growth rates are 100–120 % due to gradual and moderate growth of financial and economic indicators;

– the stage of decline. It is advisable to combine this stage with the stage of liquidation, as its most probable end, because the general growth rates characterize a stable tendency to decline without options for exiting this stage. Thus, the growth rate is less than 100 %, provided that the organization has been operating for more than 2 years, and there is a slowdown in all economic processes.

According to the conclusions drawn in [15], determining the average duration of an organization's stay at a certain stage of the life cycle is possible only for the stage of birth because the speed of passage of other stages differs radically depending on the field of activity of the organization, its scale, the selected market or its segment, and other factors.

The second stage of our research involved surveying the heads of 10 organizations in various fields of activity with the aim of identifying priority management tasks at each stage of LC. The questionnaire was formed by processing the results of a monographic analysis, which made it possible to identify 121 management tasks that are most often faced by modern organizations during the life cycle. The heads of the organizations were asked to indicate the management tasks that they are forced to solve at the current stage of the organization's LC. The analysis of the results of the questionnaire consisted in calculating the frequency of selection of management tasks by the managers and justifying their priority for a specific stage of LC. The Pearson consistency criterion χ^2 (chi-square) was chosen as a tool for analyzing the frequency of management task selection by respondents. Such a test made it possible to contrast two hypotheses – null and alternative, respectively, about the priority or non-priority of the task for the organization at the current stage of its LC [18]. It is a continuous probability distribution that depends on the parameter degrees of freedom (k) and the level of significance (α) and makes it possible to determine whether two or more variables are statistically independent (2):

$$\chi^2 = \sum \frac{\left(f_0 - f_e\right)^2}{f_e}, \quad (2)$$

where f_0 is the observed frequency of choosing a management task by the heads of the organizations under study, times;

f_e is the expected frequency of selection of a management task by the managers of the researched organizations, corresponding to the null hypothesis, times.

The third stage of our study involved the definition of a set of competencies that are used by the heads of organizations to solve management tasks at various stages of LC. Previous studies by the authors of [2] determined the structure of the organization's competence, which contains components located in a hierarchical order according to the levels of the pyramid of competence. So, the basic component (the first level of the pyramid) consists of individual competencies. It is their formation and manifestation in the activities of employees, as an indicator of compliance with a certain professional field, which provide an opportunity to implement a complex of organizational competencies. The next level of the pyramid consists of competencies within the functional component, which is responsible for the quality performance of production, sales, financial, or social functions related to personnel management and ensuring conditions for their productive work. The presence of the competencies of the strategic component located at the next level of the pyramid allow effective organizational activity in new markets, create new products through the introduction of innovative developments, that is, it is a prerequisite for the organization's success in new areas of activity. Competencies of the next level – key – contain everything that the organization or its divisions do better than others, which is valuable and original, that it possesses, and that makes it possible to produce products that are different from competitors, providing a competitive advantage and increasing protective barriers in the existing market. At the top of the pyramid are the competencies of the synergistic component, which is the result of the use of the entire set of competencies of the previous levels in their diverse interaction and makes it possible to obtain a synergistic effect thanks to their capitalization and transformation into a new intangible resource in the form of unique corporate knowledge, which ensures the growth of business value and the value of goods and services The assessment of the presence and determination of the type of connection between the stages of LC and the frequency of reference to the competences of a certain component was carried out using the method of correlation analysis, in particular, the method of pairwise correlation (3):

$$r = \frac{\overline{xy} - \overline{x} \times \overline{y}}{\sigma_x \times \sigma_y}, \quad (3)$$

where x is a parameter that illustrates the frequency of reference to a certain component of competence to solve priority management tasks of each stage of the health center, times;

y – amounts of cash flows from investment, operational and financial activities of the organization, thousand UAH.

σ_x – mean square deviation of parameter x;

σ_y – mean square deviation of parameter y.

The interpretation of the equation consists in revealing the closeness of the connection, which confirms the appeal to certain competencies within the components of the organization's competence at a specific stage of its life cycle. At the value of the correlation coefficient, which can vary from [–1; 1], less than ±0.3, the assertion of no connection is accepted. The value of the correlation coefficient in the range [±0.3; ±0.5] indicates the presence of a weak connection. Range [±0.5; ±0.7] is an indicator of a moderate relationship, the range [±0.7; ±1] – close connection.

5. Results of investigating the directions of transformation of the competence structure depending on the stage of the life cycle of the organization

5. 1. Determining the stage of the life cycle of the organization

The results of the calculation of three types of cash flow to determine the stage of LC of ten organizations of various fields of activity in 2021 are given in Table 2. A similar period of analysis was chosen in order to minimize the impact of financial risks associated with active military operations on the territory of Ukraine, in particular, Kharkiv oblast, on the obtained result.

With the aim of developing recommendations for the creation of competent organizations and ensuring the efficiency of their functioning regardless of the chosen field of activity, form of ownership and market, it is considered appropriate to select organizations of different forms of ownership, scale, and type of activity for further analysis. With this in mind, the choice was made in favor of the following organizations:

– PF "Leader". The main types of activity are the production of bread and bakery products, flour confectionery products; retail trade in non-specialized stores mainly of food products;

– Evrotechelektromontazh LLC. The main types of activity are wholesale trade in other machines and equipment, clothing and footwear, household electrical goods and household electronic equipment for reception, recording, reproduction of sound and image, computers, peripheral equipment, and software;

– Transport Company "Partner" LLC. The main types of activity are freight road transport, trade in cars and passenger vehicles, trade in other motor vehicles, maintenance, and repair of motor vehicles;

– PSP "Prybutok". The main types of activities are the cultivation of grain and vegetable crops, the production of oil and animal fats, sugar;

– LLC "LEPRECON 2021". The main types of activities are construction completion works (repair works of construction objects);

– FOP "Andrii Bronislavovych Yainsky". The main types of activities are, in particular, repair and maintenance of electronic and optical equipment, installation and installation of machines and equipment;

– "Standard Building Plus" LLC. The main types of activity are the construction of residential and non-residential buildings;

– UKRAVTOZAPCHASTINA LLC. The main types of activities are, in particular, the production of machines and equipment for agriculture and forestry, repair and maintenance of machines and equipment for industrial purposes;

– AGROTECH LLC. The main types of activity are, in particular, the production of engines and turbines, except for aircraft, motor vehicle and motorcycle engines, the production of other general-purpose machines and equipment, n.v.i.u.;

– FOP "Moldavskyi Mykhailo Oleksandrovych". The main types of activity are, in particular, repair and maintenance of machines and industrial equipment, repair and maintenance of electronic and optical equipment.

Conditional names of organizations will be used in further calculations.

According to the results of our calculations, Organization 5, Organization 6, and Organization 10 are at the stage of birth. Organization 3 is at the stage of intensive growth. Organization 1, Organization 4, Organization 7, and Organization 9 belong to the stage of maturity. The remaining organizations (Organization 2 and Organization 8) are in decline.

Table 2

Determining the stage of the organization's LC based on the analysis of the organization's cash flows in 2021, thousand UAH. (The official exchange rate of the US dollar, set by the National Bank of Ukraine on December 30, 2021, was UAH 27.2077/USD)

Organization number	Investment cash flow	Financial cash flow	Operating cash flow	Stage
Organization 1	–62,360.5	498,200	814,812	Maturity (stability)
Organization 2	12,116,554	–9,842,987	–1,285,570	Decline
Organization 3	–279,809	191,561	331,256	Intensive growth (formation)
Organization 4	2,404	–3,753	2,881	Maturity (stability)
Organization 5	–154,184	136,073	–83,442	Birth
Organization 6	–503,897	379,576	–296,151	Birth
Organization 7	–6,666	5,343	9,440	Maturity (stability)
Organization 8	166,919	–174,396	–25,497	Decline
Organization 9	–22,799	9,680	27,137	Maturity (stability)
Organization 10	–1,320	1,368	–464	Birth

Based on the above data, Fig. 1–4 show the most typical changes in cash flows for each period for the studied organizations at different stages of the life cycle.

The diagram clearly demonstrates the period of the birth of the organization when the maximum amount of investment cash flow is observed (– UAH 154,184 thousand). Operating cash flow, in turn, is completely covered by financial cash flow.

Fig. 2 shows a graphical interpretation of the results of calculations for an organization that is at the stage of intensive growth.

According to Fig. 2, there is a rapid increase in operating cash flow (up to UAH 331,256 thousand) and the attraction of additional funds by obtaining short-term loans and investments.

Fig. 3, respectively, illustrates the situation of the organization at the stage of maturity, characterized by insignificant

investment cash flow and significant and fairly stable operating cash flow.

Fig. 4 demonstrates the importance of cash flows for an organization in decline. It is obvious that there are certain problems in the organization, in particular, with the level of financial and operating cash flows, which the management is trying to solve by attracting additional investments.

Adherence to the research procedure requires additional calculation of AID based on the data in Table 3 to determine the actual stage of organization's LC.

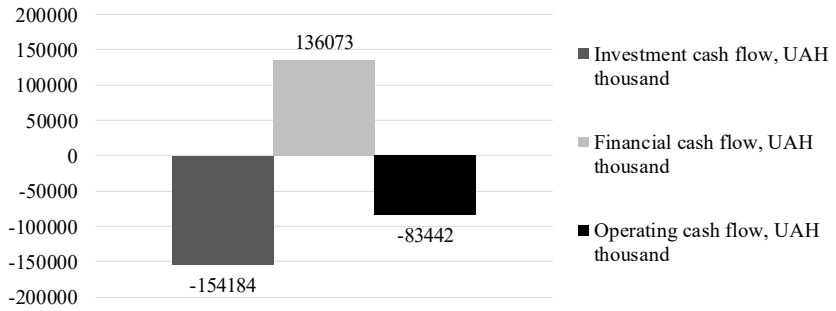

Fig. 1. Value of cash flows for Organization 5 at the birth stage

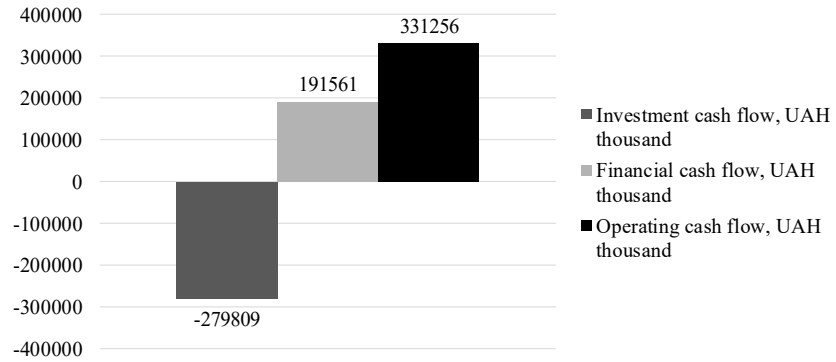

Fig. 2. Value of cash flows for Organization 3 in the stage of intensive growth

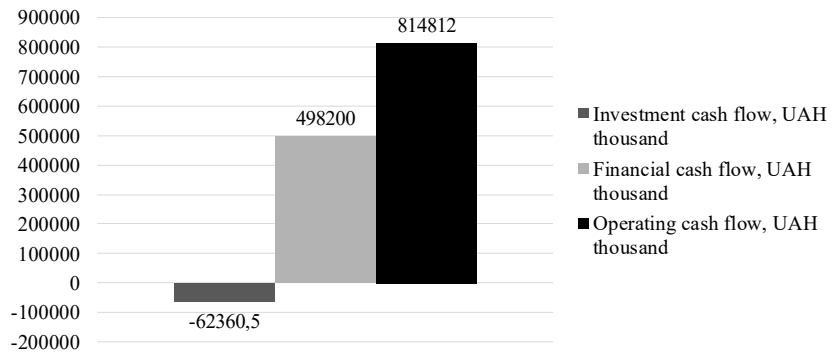

Fig. 3. Value of cash flows for Organization 1 at the maturity stage

Table 3

Results of the calculation of AID to determine the stage of LC of organizations (2)

Organization number	Quantitative indicators of LC			Estimated AID value	LC stage
	x_1	x_2	x_3		
Organization 1	121	119	114	118.0 %	Maturity (stability)
Organization 2	95.1	79.8	87.4	87.2 %	Decline
Organization 3	128.9	137.1	136	134.0 %	Intensive growth (formation)
Organization 4	123.7	106.8	113	114.3 %	Maturity (stability)
Organization 5	55.4	67.8	70	64.1 %	Birth
Organization 6	92.1	68.3	77.4	78.7 %	Birth
Organization 7	105.9	112.9	97.5	105.2 %	Maturity (stability)
Organization 8	59.9	55.4	49.7	54.8 %	Decline
Organization 9	115.6	121.4	101.6	112.6 %	Maturity (stability)
Organization 10	91.5	98	79.8	89.4 %	Birth

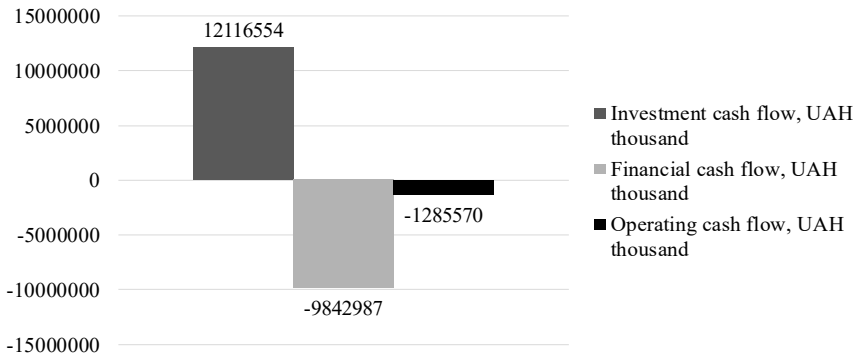

Fig. 4. Value of cash flows for Organization 2 in decline

As evidenced by the data in Table 3, the results of AID calculation coincide with the results of cash flow analysis. That is, the application of different calculation procedures confirmed the determination of a similar position of organizations on the curve of LC.

5. 2. Determining priority management tasks of each stage of the organization's life cycle

The basis for solving the outlined problem was a survey of managers of 10 organizations in various fields of activity. Two main hypotheses were proposed for the analysis of the most relevant management tasks of each stage of LC: H0 and H1. Hypothesis H0 (null) is formulated as follows: the management task is a priority for the organization. Hypothesis H1 (alternative): the management task is not a priority for the organization. Acceptance of the null or alternative hypothesis was carried out using the criterion χ^2 (2).

Depending on the stage of the organization's LC, the sample is divided into 3 groups – birth stage (*df*=240), maturity stage (*df*=360), and decline stage (*df*=120) with a generally accepted significance level of 0.05. The stage of intensive growth was excluded from the calculations because, according to the results of Tables 2, 3, only Organization 3 is at this stage, therefore the priority management tasks for it are determined by the expert response of the manager and specialists of the organization. The results of determining the priority management tasks for the remaining stages of the organization's LC based on the χ^2 criterion are given in Table 4.

Table 4

Determining the priority management tasks at the stages of the organization's LC using criterion χ^2

Management task	Estimated value	Tabular value
Stage of birth		
Formation of the mission, main and intermediate goals for its implementation	85.69	277.14
Active search for sources of attracting additional investments and providing access to the necessary resources	57.57	277.14
Identification of prospects for production and sales of products with the gradual formation of a product and market strategy	249.84	277.14
Mastering the mechanism of competition and developing a competitive strategy to conquer the desired market segment	182.65	277.14
Maturity stage		
Maintaining market share for as long as possible by reorienting strategic efforts to stabilize performance indicators and strengthen competitive market positions	65.62	405.24
Capturing new strategic priorities through the creation of own quality standards on the market, implementation of innovation and investment projects, including technical improvement of products and optimization of their assortment	53.19	405.24
Penetration into larger markets	19.49	405.24
Implementation of the strategy of «pushing» competitors out of the market	5.43	405.24
Stage of decline		
Applying a cost-cutting strategy to ensure a neutral level of net cash flow	49.02	146.57
Changing the activity profile, full or partial replacement of existing technological processes and personnel	21.47	146.57
Termination of activity through bankruptcy and liquidation of the organization	81.18	146.57
Savings of all types of resources, narrowing the range of products, reducing costs for financing various areas of activity, in particular, the wage fund, while simultaneously maintaining the minimum necessary level of income to ensure financial stability	113.4	146.57
Sale of business	208.61	146.57
Development of new infrastructure, operational and management system to update the organization at all levels of development	12.01	146.57
Reorganization of management, search for ways to use new opportunities, directing efforts to form goals corresponding to market requirements with a review of the scope of activities	21.92	146.57
Attracting additional financial resources for the purchase of new fixed assets, expansion and further development of the organization	48.76	146.57
Conservation of available resources and efficient use of production facilities	117.89	146.57
Activation of the mechanisms of merger or acquisition of the organization, creation of a vertically integrated group for further development by transition to a new life cycle	101.23	146.57

The generalization of the results of the calculations of the χ^2 criterion characterizes the situation of accepting the null hypothesis as one that corresponds to the conditions and characteristics of the sample. Since the tabular value of the criterion χ^2 exceeds its calculated level, it can be asserted that the given management tasks correspond to the specified stage of the organization's LC.

5. 3. Determining the frequency of reference to competences for solving tasks of different stages of the life cycle

The task is solved on the basis of the grouping of competences according to the components of organizational competence. Previous studies of the authors [2, 3] substantiated the following components of organizational competence: synergistic, key, strategic, functional, and basic components. Graphical interpretation of the frequency of reference to the necessary components to solve the priority management tasks of each stage of LC is shown in Fig. 5.

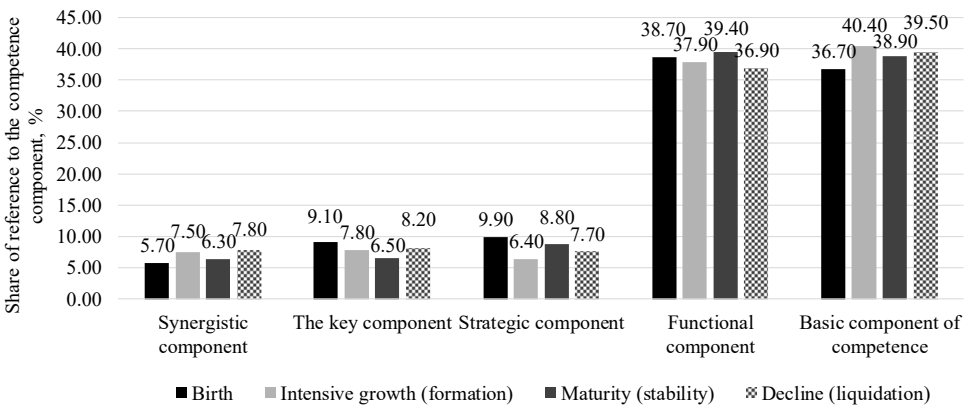

Fig. 5. The dynamics of the share of reference to the components of competence at the stages of the organization's LC in the total number of appeals

Confirmation of the main research hypothesis was carried out using the method of correlation analysis, the results of which are given in Table 5. The closeness of the relationship between the amounts of cash flows (Table 2), as an indicator of determining the stage of the organization's LC, and the frequency of reference to the components of competence for solving the priority management tasks of each stage (based on the calculation of the number of reference) was checked (Fig. 5).

Table 5

Estimated values of the correlation coefficient between the frequency of reference to the components of competence and the amounts of cash flows at the stages of the organization's life cycle

Frequency of reference to the competence component	Values of cash flows at the stage of birth	Cash flows at the stage of intensive growth	Maturity stage cash flows	Values of cash flows at the stage of decline
Synergistic component	0.36	0.66	0.18	0.62
The key component	0.53	0.58	0.15	0.5
Strategic component	0.64	0.51	0.94	0.21
Functional component	0.91	0.96	0.78	0.83
Basic component of competence	0.86	0.72	0.81	0.76

Taking into account the limit values of the correlation coefficient, considering the data in Table 5, it can be noted that the most necessary at the stage of birth are the competencies of the functional and basic components – the values of the correlation coefficient are r=0.91 and r=0.86, respectively, which characterizes a close and direct relationship. Less in demand, however, the competencies of strategic and key components are also important (r=0.64 and r=0.53, respectively). At the stage of intensive growth, it is highly desirable for the organization, according to the results of the calculations, to have the competencies of the functional component (r=0.96). The need for the competencies of the basic component is somewhat smaller, which is confirmed by the value of the correlation coefficient at the level of r=0.72. Also, compared to the previous stage, organizations need the competencies of synergistic (r=0.66) and key (r=0.58) components to a greater extent. That is, it can be said that the organization's passage through the stage of intensive growth becomes possible with the presence and rational use of the widest list of components of organizational competence. The stage of maturity is marked by the most significant correlation for the competencies of the strategic component (r=0.94), therefore, the exceptional significance of the competence of generating organizational knowledge, which allows for the formation of the strategy of innovative development of the organization, is confirmed. The values of the coefficient are slightly inferior, but the competencies of the functional and basic components remain equally important (r=0.78 and r=0.81, respectively). Regarding the stage of decline, which a priori requires the use of the smallest list of competencies due to a decrease in the number of management tasks, functional competencies and competencies of the basic component remain the most important (r=0.83 and r=0.76, respectively). Competencies of all other components have moderate (synergistic (r=0.62) and key (r=0.5) components of competence) or weak connection (strategic component of competence (r=0.21)).

6. Discussion of results of determining the directions of transformation of the competence structure according to the stages of the organization's life cycle

The cyclical nature of the life activity of organizations determines both the possibility of its transition to higher stages of development and the probability of crisis situations. The latter are often accompanied by a review of values and goals, restructuring of the production process, the system of relations with personnel or external partners, that is, a significant change in organizational elements. That is why the need to understand the organization's position on the life cycle curve comes to the fore. In order to increase the degree of validity of the results within the scope of the study, it is proposed to use two methods of determining the stage of the organization's LC. This is a method of determining

the change in the amount of cash flows (Table 2) and calculating AID. Such a combination demonstrates identical results of the distribution of the studied organizations by stages of LC (Tables 2, 3). This approach made it possible to determine the stage of economic life for each organization and to characterize it by studying only financial reporting indicators (Fig. 1–4). This is the main feature of the study. Of scientific interest are the results of determining the stage of LC for Organization 1. According to calculations, the position of Organization 1 on the curve of LC corresponds to the stage of maturity (Fig. 3), however, according to the management survey, they are mainly engaged in solving management tasks that are a priority for stage of intensive growth. Analyzing the possible causes of such inconsistency, it can be assumed that such a situation can be provoked by the management's misunderstanding of the current state of the organization's development, the inability to understand the existing problems, therefore, the lack of competencies of the basic component. This increases the probability of "freezing" of the organization at the current stage or its decline, despite the available internal potential and market opportunities.

The dynamism of the external environment leads to the loss of relevance of the complexities of one stage of LC at other stages, which changes the accumulated organizational problems. Therefore, there is a need to change the set of management tasks, which the management of the organization has to solve at a certain stage of LC. The solution to the outlined task of the research was based on the results of a survey of managers and specialists from 10 organizations in various sectors of activity, which are at different stages of LC. The respondents' choice of management tasks that they most often face allowed us to divide their list according to the stages of LC (Table 4). The determination of priority tasks for each stage was based on the calculation of the χ^2 criterion, taking into account the peculiarities and main characteristics of organizational activity, determined by the position of the organization on the curve of the life cycle. This confirmed the hypothesis about the dynamic nature of management tasks and their direct dependence on the actual stage of LC. Even more important is the question of determining organizational competencies, the presence of which allows solving the priority tasks of each stage. It is critically important at the so-called bifurcation points, that is, the transition between the stages of the organization's life cycle. It is in this state that the timely and effective solution of urgent tasks is a decisive factor in the transition of organizations to a higher qualitative level of their development or "freezing" in the current state, or even returning to the previous one. Similarly, the correctly chosen direction of the transformation of the competence structure allows preventing the stage of decline with the subsequent liquidation of the organization by means of its renewal and adaptation to the dynamic conditions of the environment. We are talking about the development or acquisition of the most necessary competencies in a certain period of time. The task was solved by calculating the frequency of reference by the heads of organizations at different stages of LC to certain competencies and determining the share of reference to each component of competence in the total volume of reference (Fig. 5). This also allowed us to test the hypothesis about the dependence of the composition of necessary organizational competences, that is, the structure of competence, on trends in the priority of management tasks, therefore, on the stage of the organization's life cycle (Table 5). That is, the gradual passage by the organization of the stages of LC almost always causes a transformation of the structure of its competence, which is fully substantiated by the above calculations.

The importance of determining the stage of an organization's life cycle has been proven by scientists [19, 20] who suggest using for this purpose either the cluster method [21] or the method of introducing cyclic economy configuration indicators [22]. The peculiarity of this study is the rational combination of two methods of determining the stages, which makes it possible to significantly increase the level of objectivity of the obtained results and the degree of validity of the formulated conclusions and developed proposals. In addition, the scientific search for effective ways of managing organizations at various stages of LC when justifying the choice of specific management methods rarely relies on the results of empirical research. However, this would make it possible to confirm or refute the formulated conclusions and assumptions. For example, in [23], the application of a management control system is proposed to ensure the effective operation of the organization at certain stages of LC. However, firstly, such a solution covers only one management function, and secondly, it makes it impossible to take into account the full range of management tasks. In the described study, the selection of priority management tasks at certain stages of LC was carried out by choosing from a wide list of them by respondents who best understand the specifics of the organization's activities in a specific period of its functioning. Moreover, the study did not end with the determination of the current stage of LC and the determination of the need to solve certain tasks. The list of competences to which it is advisable to apply in order to solve priority tasks in the best way, compared to competitors, was substantiated. In addition, awareness of the necessary competencies, supplemented by an assessment of the level of their manifestation in the activities of organizations, will make it possible to outline the directions of their development or, if necessary, additional acquisition. Certain limitations of the evidence base may be the quality and completeness of the sample for determining the stage of LC, which is related to the general shock state of the economy of Ukraine, provoked by the full-scale invasion and military aggression of the Russian Federation. This limited the evidence base of the research only to indicators of financial reporting of organizations representing small businesses, as well as, unfortunately, to the identification of only one organization that is at the stage of intensive growth due to the difficulty of implementing this process under current conditions. The disadvantage of the study can be considered the possibility of errors and inaccuracies during the questionnaires by managers and specialists of organizations, their not always comprehensive understanding of the actual tasks, as well as the goals of each stage of LC. This may also be the reason for certain discrepancies in determining the stage of LC of Organization 1 using calculations and according to the survey data of the management, which are engaged in solving tasks that are not a priority for the specified stage.

Numerous interpretations of the essence and content of the stages of LC of organization [12, 14, 19–27] focus on five main stages: birth, growth, maturity, decline, and liquidation. But in the context of the study of a competent organization, such a point of view is considered somewhat doubtful. Perhaps this is related to the fact that the organization at the stage of maturity already possesses a certain, most often, significant list of competencies acquired as it passes through

the previous stages. Therefore, most likely, the organization has several scenarios of its own development. First, under the condition of making rational management decisions aimed at updating the range of products, actively implementing innovative processes, mastering new types of activities, it can continue with the stage of renewal. A less attractive but equally possible option is the onset of the renewal stage through the passage of the recession stage. An undesirable scenario, which, through the application of preventive measures and solutions, every organization seeks to avoid, is the onset of the stage of decline with the subsequent liquidation of the organization. In accordance with the development scenario, the priority of management tasks and the set of the most relevant organizational competencies will change, resulting in the restructuring of the competence structure as a whole. Quite often, the transition to the liquidation stage is caused by the management's lack of desire to do anything and the perception of the liquidation of the organization as an irreversible process of development of events, supplemented by low financial opportunities. But the stage of decline does not necessarily mean the liquidation of the organization. A possible decrease in the frequency of use of organizational competences is explained, to a greater extent, by the despair of managers and owners of organizations, disbelief in their own ability to reproduce it. It should not be forgotten here that organizational competence is a non-obvious factor in the implementation of successful activities, which contains a powerful, often hidden potential. In addition, the dynamism of competencies, the possibility of their development and the lack of attachment to a specific location of the organization, type, or direction of its activity, contributes to the creation of unique characteristics that may not be available to others, or require a lot of additional time and finances to master them. That is, the analysis of existing competencies, the timely development of the most relevant ones under specific market conditions and at a certain stage of organizational development significantly increases the probability of transition not to the stage of liquidation but to the renewal of the organization with a logical extension of the period of successful existence.

The proposed approach to determining the directions of transformation of the organization's competence structure, due to a change in its position on the life cycle curve, can be applied in the activities of modern organizations regardless of the form of ownership, realm of activity, and scale of business. All of them in the process of functioning move through similar stages of the cycle, are forced to solve almost the same management tasks and require identical components of competence. The difference can only be in the sequence of the stages and the duration of the organization's stay at each of them. A certain limitation of the application of the proposed solutions may be the coverage of research and calculations based only on indicators of the activity of Ukrainian organizations, which does not guarantee their truth for representatives, in particular, of the European market. In addition, some subjectivity may be present in the managers' answers because all of them relied on their own experience of professional activity and solving current tasks.

The benchmark for further research is the determination of the priority of management tasks and the set of necessary organizational competencies in accordance with the chosen scenario of the organization's development. The consequence of this will be the determination of various directions of transformation of the structure of organizational competence. Next, it is considered appropriate to assess the level of manifestation of competences in the organization's activities and to consistently select those that require priority development or updating for the timely and effective solution of the tasks of the current stage of LC, prevention of the stages of decline and liquidation of the organization.

7. Conclusions

1. This study differs from the previous ones by using two complementary methods to identify the actual stage of LC of organizations – the calculation of the amount of cash flows and AID. This made it possible to analyze a greater number of financial indicators of organizations' activities and to substantiate priority management tasks in the context of determining the competences necessary for their solution, therefore, directions for the transformation of organizational competence. According to the calculations of the amount of cash flows, Organizations 5, 6, and 10 are at the stage of birth, which is confirmed by the value of AID. Organization 3 is at the stage of intensive growth. The largest group of organizations at the stage of maturity is Organizations 1, 4, 7, and 9 with AID values at the level of 118 %, 114.3 %, 105.2 %, and 112.6 %, respectively. The fact that Organization 1 is, according to calculations, at the stage of maturity, and, according to the results of the survey of managers, at the stage of intensive growth, can be explained by its recent transition between stages. In the same way, the reason may be untimely realization by managers of a change in priorities in solving tasks, the need to transform the competence structure and the management process as a whole. The rest of the organizations (Organizations 2 and 8) are at the stage of decline, which is marked by the AID value at the level of 87.2 % and 54.8 %, respectively.

2. The calculation of the criterion χ^2 for the analysis of the results of the survey of managers and specialists of organizations made it possible to form a list of priority management tasks, determined by their different positions on the curve of LC, which is a feature of the study. For organizations at the nascent stage, the task of forming a mission, main and intermediate goals for its implementation (χ^2=85.69), finding sources of investment (χ^2=57.57), identifying prospects for production and sales of products (χ^2=249.84), mastering the competition mechanism and developing a competitive strategy (χ^2=182.65). The transition to the stage of intensive growth changes the priority of management tasks in the direction of expanding the scope of activity and market share by developing competitive advantages, conducting a policy of aggressively increasing the volume of assets, developing innovative activities for the production of new products, and improving the sales system. This often actualizes the need to review the organizational structure, reorganization of the management system, which is accompanied by the construction of a hierarchy of ranks and positions. Being at the stage of maturity with a characteristic slowdown in the growth rates of production volumes and profits due to the achievement of certain limits of organizational capabilities forms a list of complex management tasks. Among them is the support of market share due to the reorientation of strategic efforts to strengthen competitive market positions (χ^2=65.62). Creation of own quality standards on the market, implementation of innovation and investment projects (χ^2=53.19);

penetration of large-scale markets (χ^2=19.49) with further implementation of the strategy of "pushing out" competitors (χ^2=5.43) allows the organization to capture new strategic priorities. The onset of the stage of decline, according to the calculation of criterion χ^2, involves the performance of two groups of tasks. The first includes ensuring a neutral level of the net cash flow indicator, narrowing the range of products, reducing costs for financing various areas of activity to prevent bankruptcy and possible liquidation of the organization. The second group of tasks is focused on a complete or partial change of the activity profile (χ^2=21.47) with the development of a new infrastructure, operational and management system (χ^2=12.01). The reorganization of management, the search for new opportunities, the formation of goals corresponding to market requirements with a review of the scope of activities are important (χ^2=21.92). The stage of decline does not always mean the mandatory liquidation of the organization. Thanks to solving the tasks of the second group, supported by investments, it is likely that the stage of renewal of the organization and its existence in a new qualitative form will come.

3. Confirmation of the need for transformation of the competence structure by stages of LC was the determination of the change in the frequency of managers' reference to its components at various stages of the organization's functioning. The importance of the basic component related to the personal characteristics of employees at the stage of birth is substantiated. This increases the probability of effective performance of the necessary functions, giving objective significance to functional component competence. The conclusions are confirmed by the results of the survey, where the frequency of references to the competences of the marked components at the stage of birth is 227 and 239 times, respectively (36.7 and 38.7 % of the total number of references). The share of reference to the remaining components of competence does not exceed 10 %, which is not evidence of their unimportance but only characterizes their lower significance at the stage of organization creation.

Intensive growth of the organization requires the widest list of necessary competencies to solve priority management tasks. The frequency of reference (600 vs. 239) to the functional component of competence is increasing, in particular, to competencies related to the effective implementation of the HR function (50 vs. 143 in the stages of birth and growth). The need for the competencies of the basic component (increase in frequency by almost 2.8 times), first of all, in the activity competencies of managers and specialists (increase in 2.82 and 2.86 times), which is a consequence of increasing the scope of performed functions, is urgent. Managers more actively turn to the competencies of the synergistic component (3.4-fold increase) to carry out activities with lower costs than competitors, using their own authority, personal, administrative, political, and economic resources to influence the adoption of necessary decisions, lobbying organizational interests. The frequency of reference to the competencies of the key and strategic component is increasing (increases of 2.2 and 1.66 times), which ensure the generation of knowledge, the necessary organizational behavior for quick adaptation and effective implementation of the activity strategy.

The frequency of reference to the competences of the strategic component grows fastest at the maturity stage – by 2.4 % in the total volume of reference, which is explained by the positive dynamics of production volumes, sales, profits, and strengthening of market positions. The development of innovative processes is taking place, which significantly depends on organizational knowledge and makes it possible to increase the adaptive properties of the organization. It is obvious that the volume of capital investments of the organization is growing, the need for strict control over expenses, ensuring a sufficient amount and balance of equity capital. This explains the expediency of addressing the functional component of competence, in particular, those competencies responsible for the implementation of management, marketing, sales, and financial functions (increase in the frequency of reference by 1.1 times).

The decrease in the frequency of reference to competences at the stage of decline is often dictated by the despair of the heads of organizations, disbelief in their own ability, and the possibility of its reproduction. When liquidation turned out to be inevitable, it is advisable to use past achievements, manifested in the competencies of synergistic and key components of competence (increase in the percentage of reference by 1.5 and 1.7 %). A strong basic component, in particular, the personal and operational competencies of the manager, ensures the most painless liquidation of the organization for employees and owners. But the stage of decline does not always precede the liquidation of the organization – the possibility of its recovery has been proven, which causes a redistribution of the shares of reference to the components of competence.

Within the framework of the study, the procedure for determining the stage of the organization's LC is supplemented by the justification of the list of the most likely tasks and the components of competence necessary for their solution, which distinguishes it from existing ones. Tracking trends in the need for them as a result of changing stages confirms the dynamic nature of competence and the transformation of its structure during the functioning of the organization. Managers' understanding of the position on the life cycle curve, the list of priority tasks and competencies for solving them will make it possible to extend the period of the organization's life by successfully overcoming bifurcation points, preventing the stage of decline due to timely renewal of the organization, or making it as painless as possible. It becomes possible to determine the gaps in the composition of competencies by comparing their existing list with what is needed at the current stage of LC, implementing measures for their development or additional acquisition.

Conflicts of interest

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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Data availability

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

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