

# Using Project Management Tools in the Process of Modernizing the Healthcare System of the Republic of Kazakhstan

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## Abstract

The need for reforms in the health sector of the Republic of Kazakhstan is long overdue. In recent years, the problem of protecting the health of citizens has already become a problem of a threat to the national security of the country. The main reasons for this situation lie in the imperfect system of healthcare management, insufficient funding and irrational distribution of funds allocated by the state to the industry. The resolution of contradictions between the needs of the population of Kazakhstan in timely and high-quality medical care and the tasks of medical institutions in providing these services is possible through the introduction of project management methodology. The scientific novelty of the study lies in the development of evidence-based mechanisms for a project-oriented approach to managing the healthcare system to improve the quality and accessibility of medical services. The article analyzes the current situation in the field of healthcare, shows the need to use project management tools to solve existing problems and contradictions. The authors proposed to use a portfolio-oriented approach to modernize the health care system of the Republic of Kazakhstan, and also developed a general structure for a set of project portfolios.

## Keywords

Healthcare system, healthcare projects, project management, portfolio - oriented management, strategic goals

## 1. Introduction

One of the complex project types in social orientation are projects and programs in the field of healthcare activity. Moreover, due to the specifics of goals to achieve a positive effect in the state of health of patients not only through qualified medical care, but also through the introduction of modern project-oriented management mechanisms. In recent years, the healthcare problem of citizens has already turned into a threat to the national security of the country.

The major reasons for the current situation lie in the imperfect system of healthcare management, insufficient funding and irrational distribution of funds allocated by the state to the industry. The best global practices in organising the healthcare system have proved the usefulness of using a project-based approach, which allows the most effective organisation of treatment and prevention activities of medical organisations. Project-based management aims to organise manageable social and organisational technical systems with attributes of uniqueness, constraints in time, quality and resources, all of which are fully in line with the objectives of population health services.

Existing health-care management approaches do not always ensure that quality health care objectives are met due to a lack of effective models, methods and techniques for implementing

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management mechanisms. The organisation of treatment activities is usually a response to the condition of patients. It is therefore relevant today to transform the health care system towards proactive management based on models that reflect the essential properties of the system in question.

It is possible to resolve the contradictions between the needs of the population of Kazakhstan for timely and quality medical care and the tasks of medical institutions in providing these services through the introduction of project management methodology.

## 2. Literature review

The need for reform in healthcare is long overdue. The health care of our country has gone through a difficult historical path of development, which made it possible in the 20-60s to solve the problems of social and hygienic well-being in the country in conditions of predominantly infectious pathology. For several decades, the development of health care has proceeded in an extensive way, which has been largely justified. However, in the 1970s and 1980s, in connection with the beginning of the epidemiological transition, the new conditions for the socio-economic development of the country, it was necessary to transfer healthcare to a new mode of functioning, but for a number of reasons this was not done. Moreover, in the last decade, those negative trends that were associated with the residual principle of financing, the dominance of administrative-command methods of management, and the leveling cost nature of the entire national economy have intensified [1–4].

The form of economic management in health care reflected, under the conditions of the command-administrative system, its fundamental features. These features and attributes have been analyzed in sufficient detail in the literature and can be summarized as follows. These are, first of all, chronic shortage of financial resources, inefficient use of available resources, insufficient material incentives, lack of opportunity for health care to influence demographic, environmental, socio-economic factors that determine the living conditions of people and their health status [2, 3].

Evidence of the crisis in the sector can be found in an analysis of health outcomes based on an annual World Health Organization (WHO) compilation of data from its 194 member states [5].

Indicators are selected on the basis of their relevance to global health, the availability and quality of data, and the validity and comparability of estimates based on them. Together, this set of indicators comprehensively characterizes the current health status of populations and health systems in the following nine areas:

- mortality and disease burden;
- mortality and morbidity from specific causes;
- certain infectious diseases;
- health service coverage;
- risk factors;
- health workforce, infrastructure and essential medicines;
- health care costs;
- health inequalities;
- demographic and socioeconomic statistics.

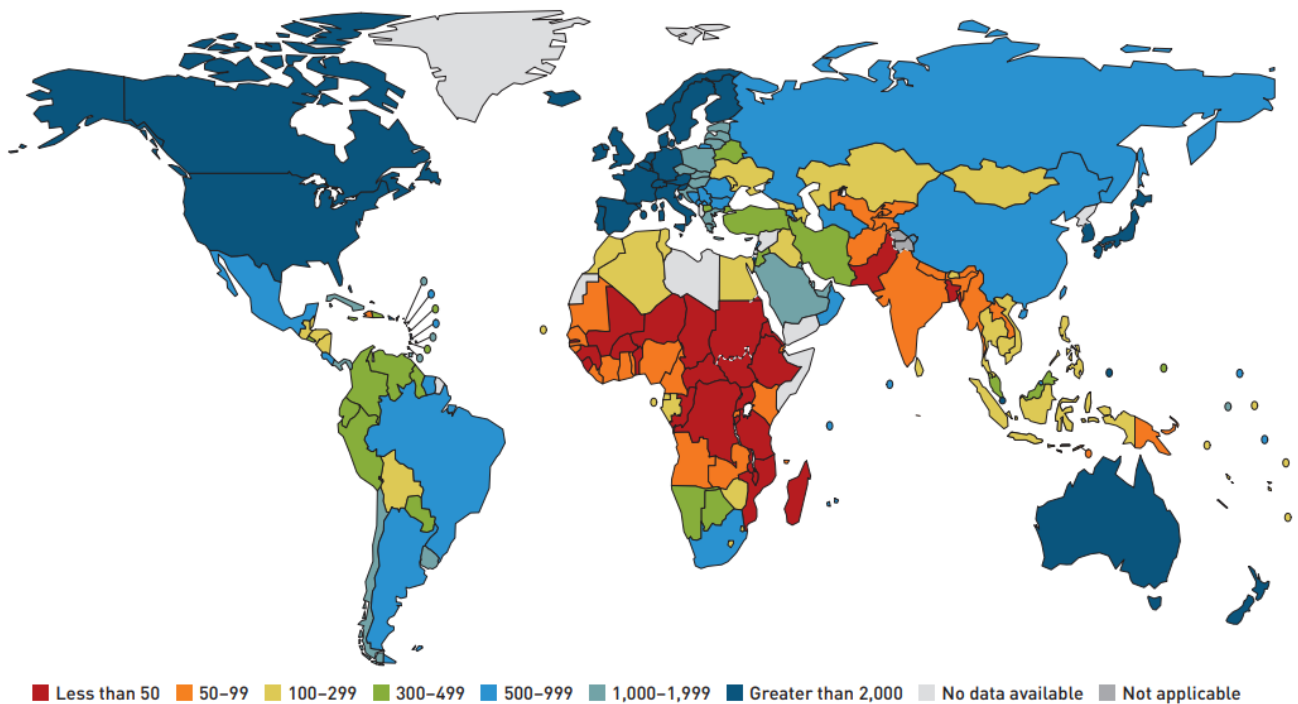
Today, many countries are showing signs of progress towards the health-related Millennium Development Goals. In other countries, factors such as conflict, poor governance, economic or humanitarian crises, and lack of resources hinder progress. The impact of the global food, energy, financial and economic crises on health is only just emerging, and action needs to be taken to protect health spending by governments and donors. Despite these encouraging trends, significant disparities lie behind regional and national averages.

In the health care of the Republic of Kazakhstan, there has been a positive trend in reducing such indicators that are sensitive to the quality of medical care, such as child and maternal mortality. In the country as a whole, it has decreased, while the birth rate is finally slowly increasing. Medical support for patients with HIV/AIDS and tuberculosis and other infectious diseases has improved significantly.

In prosperous countries, the government bears the bulk of the costs, while in third world countries external resources or patient funds are the main source of funding. The results of WHO studies demonstrate the dependence of life expectancy on health care costs.

Despite the fact that in the last decade, health care costs in the world and in particular in Kazakhstan have increased significantly, they are still several times less than in developed countries (Fig. 1) [6]. The share of total health spending in GDP is 9.4%, in Kazakhstan - 3.0%. In general, public spending on health care per capita in Kazakhstan is 9 times lower than in OECD countries: Kazakhstan - \$ 268; OECD - 2414 euros. Due to insufficient financing of health care in Kazakhstan, a high level of private spending on medical care remains (Kazakhstan - 35.4%, OECD - 19.6%, EU - 16.3%). According to WHO, the level of population spending over 20% is a sign of low financial sustainability of the health care system. It means that the population is approaching the poverty line due to diseases, which, in turn, can affect all areas (ability to receive education, economic productivity, reduced demand for medical services), as well as lead to a deterioration in health and demographic indicators [7]. This explains the critical importance of one of the main indicators of the health system: 66 years for men and 74 for women. It is also worth paying attention to the fact that Kazakhstan is one of those states in which the average life expectancy has decreased in recent years. In terms of gender, life expectancy in Kazakhstan has decreased for both men and women: for men - from 67.1 years in 2020 to 66.3 years in 2021, for women - from 75.5 years in 2020 to 74 years in 2021 [8].

The current situation in the national healthcare system has long been unsatisfactory. The population expects quality and, at the same time, affordable services. Medical personnel are interested in the provision of quality services, but with adequate motivation for their work, which depends on the volume and quality of the services provided. Although the amount of budget funding for health care has been increasing from year to year, there is not enough money for decent salaries of health care workers, nor for the treatment of patients, nor for their nutrition [5].



**Figure 1:** Health spending per capita, 2019 (US\$) [5]

Kazakhstan's healthcare system continues to be underfunded. And it functions according to the cost principle, since its structure today remains redundant.

To date, there are a number of weaknesses in health care in the Republic of Kazakhstan. According to a study conducted in 2020 by the Ministry of Health [9], the following weaknesses were identified:

1. insufficient level of health literacy of the population (degree of influence of behavioral risk factors on health);
2. uncompetitive salaries of medical workers in the public health sector;
3. outdated infrastructure of medical organizations and insufficient medical equipment;
4. imbalance of personnel in the health system;
5. uneven level of service and quality of medical care;

6. imperfect information technologies.

Low-cost forms of primary care, day hospitals and home hospitals are slowly developing and underused. The practice of family doctors has not received due development. And this is despite the significant changes that have occurred in connection with the COVID-19 epidemic in the world.

According to the roadmap of the development programme "Strategy 2050" [10], the following solutions to the above problems are proposed:

1. introduction of artificial intelligence and full digitalization;
2. mobile and web-based applications to inform and involve the population in protecting their own health;
3. the WHO Healthy Cities initiative;
4. improving health literacy and reducing behavioural risk factors;
5. development of personalized medicine;
6. introduction of innovative treatment methods and technologies, including biopharmaceuticals;
7. public-private partnerships in health care;
8. increasing health financing.

The current Health Development Program of the Republic of Kazakhstan (2020-2025) focuses on the development of a modern, integrated health care system, in which primary health care and quality and financial sustainability of the health care system. As in the previous strategy (2016-2019), a large role is given to the participation of the private sector, including public-private partnerships, as well as the introduction of innovative and modern tools for the effective management of the healthcare system and the provision of medical services to the population.

In summary, it should be noted that health care in the Republic of Kazakhstan is in urgent need of modernization, the main purpose of which is to improve the accessibility and quality of medical care for the general population. However, real health care reform will only be possible after the implementation of a scientifically based set of legal, financial and managerial measures.

In recent years, thanks to the efforts of project management scientists this scientific field has been rapidly developing in many sectors - construction, manufacturing, transport and education. At the same time, numerous studies by foreign experts on public-private partnerships in the management of medical projects and programmes are known. The use of this potential is necessary to develop methods for reforming the healthcare system. Global experience has proven the effectiveness of using the project management methodology in the organization of the healthcare system [11-15].

Project management allows you to combine many technical, economic, legal, and socio-psychological disciplines into a single scientific and practical methodology and use this conglomerate of different knowledge to develop new methods and tools for project management. Recently, project management has been used more widely and covers an increasing number of operations and new areas of application [16-18].

Focusing on international principles of public administration, in recent years, all healthcare system reforms are built on the principles of project management, which are defined in the basis of the State Health Development Program of the Republic of Kazakhstan for 2020-2025. The task of introducing project management by the Ministry of Health of the Republic of Kazakhstan was initiatives to create a public health service, integrate all levels of medical care, and others that do not fully comply with recognized principles due to limited resources and potential of healthcare professionals [18-20].

### **3. Purpose of the research**

Consider the rationality of using project management tools in the reorganization of the health care system of the Republic of Kazakhstan. Justify the need to use portfolio-oriented management tools to achieve the strategic goals of the current Health Development Program of the RK (2020-2025).

### **4. Portfolio-oriented management of the healthcare system**

The presented analysis of the state of the industry shows that the main cause of the healthcare crisis lies in the inefficient management system. Today, the state is faced with a number of problems, without

solving which it is impossible to solve the problem of timely, complete and high quality health services [11, 12]:

- increase funding for the healthcare system of the Republic of Kazakhstan;
- develop tools for the rational use of limited budgets for medical care without losing the quality and volume of services;
- change the mentality of the heads of healthcare institutions: moving away from the "state" approach to a business approach, while maintaining ethical and quality standards;
- develop national (or, if possible, join international) standards of medical services, medical guidelines and rules for managing the healthcare system.
- to stop the process of outflow of specialists in various fields of healthcare.

The basis of the project approach is a precise and clear definition of the project objectives. In accordance with the results of the analysis of the state of health care in the Republic of Kazakhstan [6], the strategic goal should be considered as the creation of legal, financial, organizational and technological conditions for the guaranteed provision of quality medical care to the population. Figure 2 presents a set of seven objectives, the joint solution of which will solve the problem of providing medical services. The solution to each of these problems requires the comprehensive implementation of a number of different types of projects (figure 2, developed by the authors):

- Basic (medical check-ups, ambulance, outpatient treatment, inpatient treatment, sanatorium rehabilitation);
- Insurance (compulsory and voluntary medical insurance);
- Innovative (scientific, construction, production);
- Educational (training, professional development and certification of personnel);
- Information (storage, analysis, transfer of information, standardization).

It should be noted that the overall result of the industry reform will be determined not so much by the successful implementation of individual projects, but by the effect obtained from the implementation of the entire set of projects - a portfolio, which makes the application of the methodology of portfolio-oriented management much more relevant [20, 21].

In the paper [22, 23, 25, 26] defines a portfolio as a set of projects (not necessarily technologically dependent) implemented by an organization under resource constraints and ensuring the achievement of strategic goals. Thus, the use of project portfolio management techniques ensures that the organization has all the necessary resources to complete all strategically necessary projects.

The right choice and successful implementation of project portfolios is a link between strategic planning and project management. In such an environment, the management level of organizations has all the necessary information to find the best way to use resources, focusing only on "feasible" projects that meet strategic goals.

The goals are formed and set on the basis of the overall mission and must meet the following requirements [21, 24, 25, 27]:

- concreteness and measurability of goals;
- goal orientation in time;
- goal reachability;
- the interdependence of goals (actions and decisions necessary to achieve one goal should not interfere with the achievement of others).

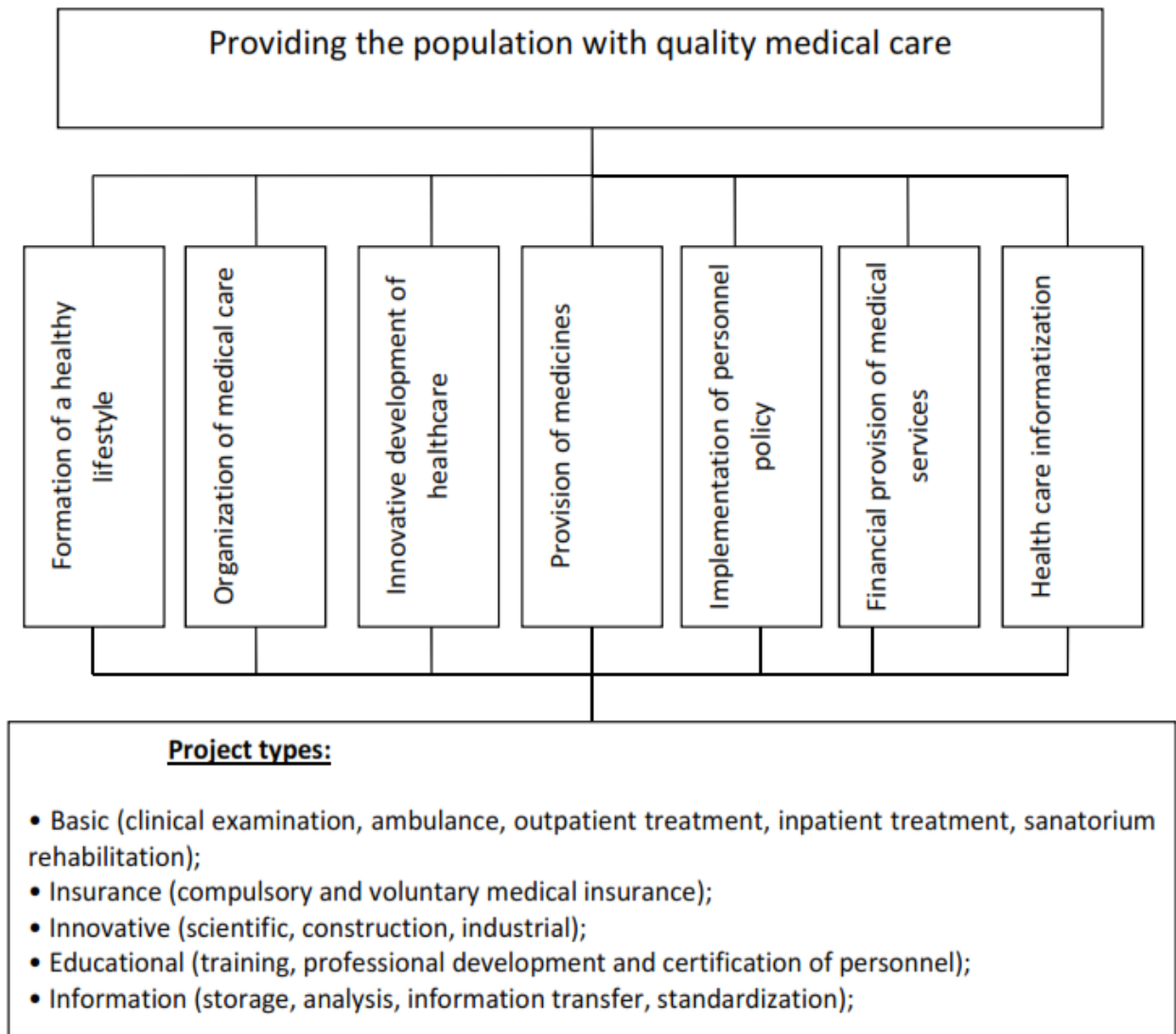
The project portfolio management process can be divided into four parts or stages [26, 28]: defining the entire list of projects, analyzing projects, optimizing the portfolio, and implementing the portfolio (Table 1).

Among the distinctive features of the portfolio, you can also distinguish:

- a set of projects may have new properties that are not achievable by the project individually. Thus, the emergence of a portfolio allows you to get new additional values from its implementation.;
- diversification of the portfolio's projects allows achieving its sustainability and reducing risks;
- portfolio project management involves an integrated approach to managing the entire set of projects that correspond to the healthcare system development strategy.

An analysis of the specifics of managing a portfolio of healthcare projects and the possibility of using known management mechanisms allow us to conclude that the following theoretical tasks of managing a portfolio of projects are relevant:

- assessment of the effectiveness of projects in terms of achieving the strategic goals of the healthcare system;
- formation of an effective portfolio of projects;
- planning the process of implementing a portfolio of projects, including taking into account the possibilities of optimizing financial flows;
- distribution of resources between projects included in a single portfolio;
- operational management of the portfolio of projects, taking into account the changing external conditions and the strategic goals of the Health System Development Program.



**Figure 2:** Mission, objectives and types of projects of health care (developed by the authors)

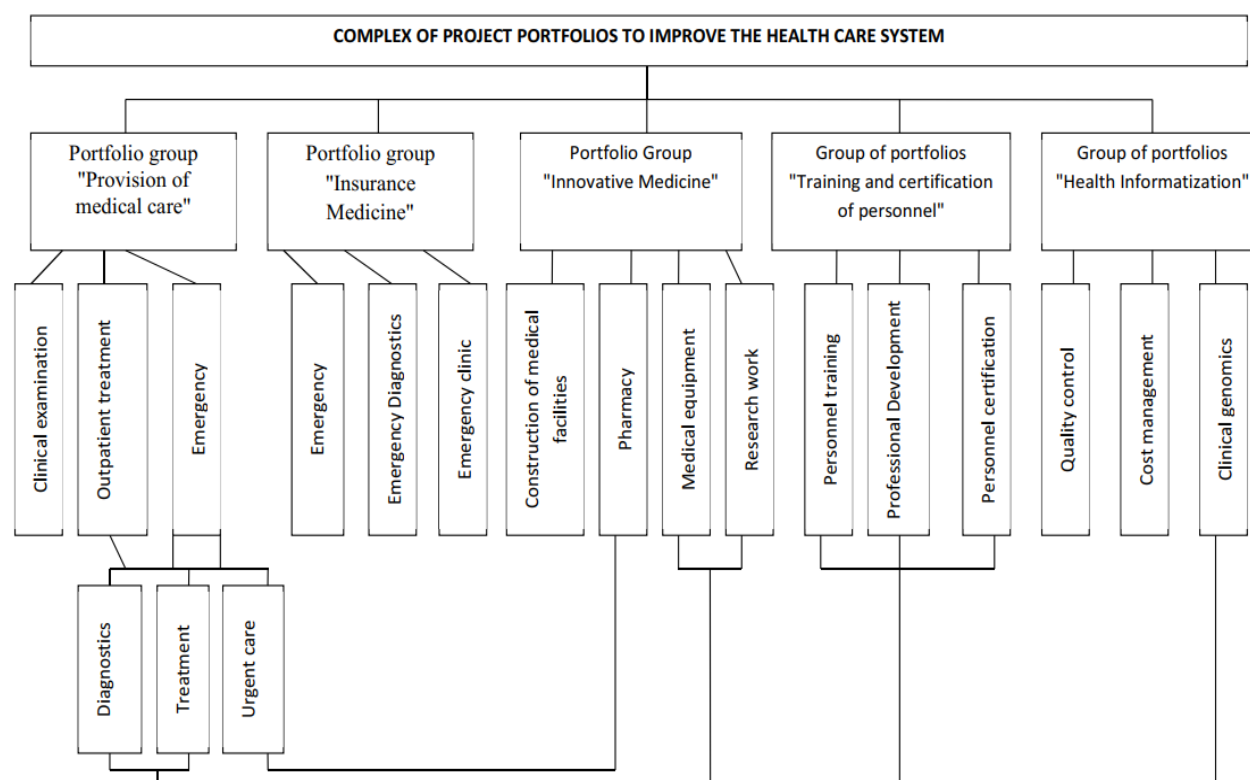
**Table 1**  
Project portfolio management processes [26]

Defining a list of projects	Analysis	Optimization	Realization
<ul style="list-style-type: none"> <li>• definition strategic ones goals;</li> <li>• defining project categories;</li> </ul>	<ul style="list-style-type: none"> <li>• analysis of compliance of projects with the strategy;</li> </ul>	<ul style="list-style-type: none"> <li>• calculating the resource balance;</li> </ul>	<ul style="list-style-type: none"> <li>• notification of changes in the portfolio;</li> </ul>

- 
- collecting data on projects and resources;
  - comparison of projects with goals;
  - distribution of projects and resources by category;
  - defining and fixing project attributes, priorities, and budgets
  - aggregation of data for individual projects;
  - determination of acceptable resources, their scarcity and redundancy;
  - analysis of financial flows;
  - identification of interproject dependencies and conflicts
  - maximizing the utility of the portfolio;
  - reducing the risk of the portfolio as a whole;
  - reallocation of critical resources;
  - modeling of alternative portfolio options;
  - reduction of redundant resources
  - report on the degree of compliance of the strategy with priorities;
  - updating detailed plans;
  - closing unnecessary contracts;
  - initiation of new projects;
  - report on the portfolio's usefulness to investors and customers
- 

Each of the listed tasks has a significant impact on the implementation of the portfolio and, as a result, on the Program for the Development of the Healthcare System of the Republic of Kazakhstan, however, the main task, in our opinion, is the problem of forming an effective portfolio of projects.

Figure 3 presents the general scheme of portfolio-oriented healthcare management developed by the authors.



**Figure 3:** Portfolio-based management of the healthcare system (developed by the authors)

## 5. Conclusion

The fundamental task of the healthcare system of any country is to ensure the right to health care and the opportunity for citizens to receive high-quality and timely medical care.

Understanding health care as a system requires the implementation of an integrated approach in the policy of its development. Often it is about individual elements of the health care system. For example, about the organization of medical institutions or methods of financing. This approach is associated with the traditional administrative division that existed before. However, this approach ignores the real situation in which the healthcare system develops as a single set of processes and services. At the same time, each element of the system not only performs its individual function, but is also inextricably linked with other elements of the system. This is very important in today's environment, when more and more attention is paid to the overall functioning of the healthcare system with an emphasis on results, customer satisfaction and high quality of service.

An analytical review of the state of the healthcare system in the Republic of Kazakhstan and abroad showed that in recent years in many countries there have been signs of progress in achieving sustainable development goals related to healthcare: child mortality is decreasing, the effectiveness of treatment of many previously incurable diseases is increasing, the number of HIV infections has decreased. infected patients, etc. However, despite these encouraging trends, significant disparities lie behind regional and national averages. In many states, progress is hampered by factors such as wars, national conflicts, poor governance, economic or humanitarian crises, and lack of resources.

The health care system of the Republic of Kazakhstan is in a critical state, as evidenced by the decline in life expectancy and lagging behind the world leaders in almost all indicators characterizing the level of public health.

For further progress in achieving the goals of sustainable development of mankind, as well as the goals of the Health Development Program of the Republic of Kazakhstan (2020-2025), improving the efficiency of health systems will be of key importance. Strong political momentum, sustainable, predictable funding, and programs to protect and support health workers will be needed to strengthen the health workforce, ensure access and improve the quality of services.

One of the reasons that led the healthcare system to the current situation is the imperfection of the healthcare management tools used. The strategic goals of the health care reorganization processes should be to improve the quality and accessibility of health services based on evidence-based methodology of portfolio-oriented management. The general structure of the portfolio-oriented healthcare system of the Republic of Kazakhstan proposed by the authors of the study will allow us to apply an integrated approach to managing a set of projects that are in line with the healthcare development strategy, achieve system stability and reduce risks, and also obtain new additional values from the implementation of each group of projects.

The introduction of project management tools in the public sector, in particular in the field of healthcare projects, will allow achieving the strategic goals of the Health Development Program of the Republic of Kazakhstan (2020-2025) within the planned time frame. The application of these approaches is of particular relevance in the context of limited financial resources, problems with personnel and large volumes of tasks that the healthcare industry sets itself today.

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