SATBAYEV UNIVERSITY

E.A. Turkebayev Project Management Institute
Department of Management and Mathematical Economics

UDK 005.8:338.28(047) On manuscript rights

TURKEBAYEVA KARINA TOLEUOVNA

Regional diversity, development and growth: evidence from Kazakhstan, project approach

6D051800 – Project Management

DISSERTATION
in fulfilment of the requirements for the degree of
Doctor of Philosophy (PhD)

Research supervisors:
d.e.s., professor
Sabden O.S.

PhD, professor
Ferenc Kiss (Hungary)

Republic of Kazakhstan
Almaty, 2024

CONTENTS

NORMATIVE REFERENCES

In this thesis the following normative references were used:

ГОСО РК 5.04.034-2011 – «state compulsory education standard of the Republic of Kazakhstan. Postgraduate education. Doctoral studies» «main provisions were approved by the Minister of Education and Science of the Republic of Kazakhstan. June 17, 2011, No. 261, Astana 2011.

ГОСТ 7.32-2001 - Scientific research paper report. Structure and rules of preparation. Astana, 2001.

ГОСТ 7.1-2003 - Bibliographic records. Bibliographic description. General requirements and rules of compilation.

NOTES AND ABBREVIATION

RK	– Republic of Kazakhstan
APA	– Academy of Public Administration under the President of the Republic of Kazakhstan
PMBOK® Guide	– A Guide to the Project Management Body of Knowledge
PMI	– Project Management Institute
IPMA	– International Project Management Association
ISO	– International Organization for Standardization
UN	– United Nations
OECD	– Organization for Economic Cooperation and Development
WEF	– World Economic Forum
IMD	– International Institute for Management Development
GCI	– Global Competitiveness Index
RCI	– Regional Competitiveness Index
UKCI	– United Kingdom Competitiveness Index
CCI	– Cantonal Competitiveness Indicator
GDP	– Gross Domestic Product
GRP	– Gross Regional Product
FDI	– Foreign Direct Investment
SMEs	– Small and medium-sized enterprises
PMO	– Project Management Office
GP	– Government Program
NP	– National Project
OGC	– Office of Government Commerce
CMM	– Capability Maturity Model
PMMM	– Project Management Maturity Model
KPMMM	– Kerzner Project Management Maturity Model
OPM3	– Organizational Project Management Maturity Model
NPM3	– National Project Management Maturity Model
SPM3	– Sustainable Project Management Maturity Model
NSPM	– National System of Project Management
NPO	– National Project Office
ISPM	– Information System of Project Management

INTRODUCTION

Research actuality. In the conditions of globalization and integration processes regional diversity, development and growth are becoming key factors in the sustainability and competitiveness of national economies. The study of these aspects becomes especially significant in case of considerations on the example of Kazakhstan, a country with multinational, multicultural, economic and rich natural specifics, occupying a strategic geopolitical position in Central Asia and on the Eurasian continent.

The increasing pressure of external factors caused by unstable development of global economy, changes in demand and prices for commodities, periodic trade disagreements between leading players in the market, difficult geopolitical situation in the world, has an impact on the economic development of Kazakhstan. Such crisis conditions complicate the effectiveness of regional development and growth, while the importance of government and public administration bodies as the foundation for ensuring sustainability of regional socio-economic development and improving the quality of citizens' life is increasing.

The search for effective government management models that meet modern challenges and economic conditions prompted the country's leadership to prioritize the widespread implementation of project approach as a promising direction in management, that is actively used by the business community and is widely applied in the government sphere in various countries.

The implementation of project management is an approach for the successful realization of government programs and projects.

In Kazakhstan, the use of project management tools in the work of government bodies is a new relevant direction.

Head of the Republic, Kassym–Jomart Tokayev, during the first meeting of the Supreme Council for Reforms, proposed to consider new approaches to the national planning system: «*We are faced with the task of constructing a more flexible architecture of program documents that define the goals and stages of state development in each area. The system will be linked with budget planning and will establish direct responsibility of government agency heads for the fulfillment of set tasks. It is important to ensure the execution of Supreme Council decisions, the implementation of national projects, and introduction of project management principles*» [1]. Also, in the first-tier document of the national planning system – National Development Plan of the country in its latest revision, it is indicated a transition to a new model of public administration, shifting from operational management to project management, concentration on the implementation of strategic documents.

Initiative 7.8 of the Strategic Development Plan of the Republic of Kazakhstan is dedicated to the spread of project approach within government bodies, primarily for application in areas such as development and realization of projects requiring major changes. For the development of programs and projects on cutting-edge topics, such as those related to digital technologies, modern approaches like Agile will be used [2].

In his Address «Economic Course of Fair Kazakhstan», President Kassym-Jomart Tokayev noted: «...to become a truly developed country, we must combine political reforms with deep and comprehensive socio-economic transformation». The upcoming structural economic reforms have been announced. To ensure economic self-sufficiency, it is necessary to realize a number of «truly fateful projects for our country» [3].

In order to effectively implement key areas of state policy in the country, it is planned to introduce a project approach at all levels of administration: republican, regional and local.

Regional development involves the realization of different programs and projects. Integration of project approach into a regional management system has its own specifics and requires particular project management technologies applicable at the macro level. This approach implies the elaboration of concrete measures aimed at stimulating development and growth, taking into account regional diversity, followed by monitoring and adjustment of implemented projects.

In the republic, the issues of applying the project approach in regional management are underexplored. In practice, project management is not utilized to its full extent in the activity of regional government bodies. The project approach within the context of regional management and development of Kazakhstan is considered for the first time.

Thus, the actuality of dissertation research on the topic «Regional diversity, development, and growth: evidence from Kazakhstan, a project approach» is determined by the need for a comprehensive analysis and search for optimal ways for developing the regions, taking into account their peculiarities, and potential of Kazakhstan within the context of modern global tendencies and trends.

Extent of research issue elaboration.

The dissertation research investigates the issue of using a project approach in managing regional development. Certain aspects of these issues have been considered in the works of both domestic and foreign scientists.

Significant contributions to the theory and practice of management system have been made by Western researchers such as Taylor F.W., Weber M., Wilson W., Frederickson H.G., Fayol H., Gilbreth L.M., Gantt H. et al.

In the conditions of limited global research on the management of state and its regional structures there are plethora of theoretical elaborations on the application of specific project management tools, including those that have been adapted from the business sector as part of isomorphic transformations. In particular, there is an extensive base of scientific works on state planning and program-targeted management, which became the starting point for the introduction of project methodologies in the administrative sector: Ackoff R. L., Ansoff I. H., Cleland D. I., King W.R. and many others.

Research on project management varies in the depth of topic exploration. The most successful practices of implementation and development of project management in organizations are covered in publications of professional managers recognized at the global and Kazakhstan levels. H. Kerzner, C. Gray and E. Larson, R. Mulcahy, J. M. Juran, M. Wideman, P. Dinsmore, K. Heldman, J. V. Sutherland, D. J. Anderson, G.

Diethelm review and analyze the essence of the project, project management approaches and methodologies, factors of project success and failure, risks and opportunities, project quality, artificial intelligence in project management, maturity of project management in the organization, etc.

Separate theoretical and methodological problems of regional project management in the Republic of Kazakhstan are reflected in the works of authors such as Tsekhovoy A.F., Sabden O.S., Narbaev T., Turkebayev E.A., Baizakov S.B., Khusainov B.D., Nurlanova N.K., Brimbetova N.Zh., Kunitsa S., and others.

The purpose of this dissertation is a substantiation of theoretical and methodological basis of project approach in management of regions, development of a methodology for calculating regional competitiveness index (RCI) and a model of regional project management, the elaboration of practical recommendations on an improvement of regional project management system.

In accordance with this goal, the following objectives have been set:

– Investigate the theory and methodology of project approach in government management of regional development of the Republic of Kazakhstan (RK).

– Form a statistical database on indicators characterizing the development level of Kazakhstan's regions.

– Identify the main factors affecting the benefits of government programs and economic development projects.

– Assess the level of project management maturity in government bodies of the Republic of Kazakhstan.

– Based on project approach, formulate a methodology for calculating regional competitiveness index (RCI) for global competitiveness index (GCI) of Kazakhstan.

– Suggest ways to increase the competitiveness of regions and recommendations for an accelerated implementation of project management to ensure their development.

Research object – process of realizing a project approach in the development and growth of Kazakhstan's regions.

Research subject – institutional conditions, economic relations, organizational and managerial practices that are formed during the implementation of project activity in regions.

The research theoretical and methodological basis is the scientific work of scholars in the field of project management, regional management, regional economics and development. In the course of dissertation work, a complex of research methods was used: historical-genetic method, modeling methods, econometric, statistical, correlation, regression, factor analysis, comparison, index method, survey and other research methods.

Research information base: Addresses of the President of RK, legislative and regulatory documents, normative legal acts, statistical material from the Bureau of National Statistics of the Agency for Strategic Planning and Reform of the Republic of Kazakhstan, analytical reports of the World Economic Forum, Organization for Economic Cooperation and Development, United Nations, Institute for Management Development, World Bank, international professional standards for project management.

Econometric calculations: software packages including Stata 8.0, Statistica and R studio.

Scientific novelty of research. Scientific novelty of research consists in solving a relevant scientific task associated with the formation and justification of theoretical and methodological foundations of project approach, aimed at enhancing the effectiveness of project management in the context of regional diversity, development and growth.

Basic propositions for thesis defense:

– The conceptual provisions of project approach in government management of Kazakhstan regional development were substantiated;

– Factors affecting the benefits of government programs and regional economic development projects were determined;

– The causal relationships between the variables of regional development and growth were identified using correlation and regression analysis;

– An empirical analysis and assessment of project management maturity of Kazakhstan regional executive bodies with ranking of country's regions by the level of project management maturity were conducted;

– It was proposed the methodological innovation in terms of developing the methods for calculating the regional competitiveness index;

– Author model of regional project management was elaborated;

– Recommendations for state regional structures on the optimization of project mechanisms and tools to improve managerial practices in the regions of Kazakhstan.

Theoretical relevance of research results. Theoretical importance and contribution of this research is the systematization and supplementation of accumulated knowledge about regional project management, the application of project approach in government and public management of regions, taking into account the regional diversity of the Republic of Kazakhstan. The author contributes to the advancement of regional science by proposing the elaboration of methodology for assessing RCI and a project management model of regional development, with consideration of Kazakhstani context. Theoretical results of this study can be used in the educational process when designing educational programs on the specialty of «Project Management», in particular, in the educational and methodological complexes of disciplines «Project Management», «Managerial Economics», «Technological Entrepreneurship», «Regional Economics», «Regional Economics' Management».

Practical significance of study. The results obtained during the study can be applied in the elaboration of national projects, government programs and development plans, as well as normative legal acts and documents on the implementation of project activity. Target consumers and stakeholders: Ministry of National Economy, Ministry of Digital Development, Innovation and Aerospace Industry, Ministry of Science and Higher Education, Central government bodies, Local executive bodies, other government agencies, departments and research institutes.

Approbation of study results. Basic research results were presented and discussed at conferences:

– Project Management Development – Practice and Perspectives 9th International Scientific Conference on Project Management in the Baltic Countries, Riga, Latvia, April 23-24, 2020;

– Proceedings of Satbayev Readings «Satbayev Readings – 2020» Volume II, RK, Almaty, 2020;

– IEEE International Conference on Smart Information Systems and Technologies (SIST) 4-6 May 2023.

Materials and data of the research work were used within the framework of projects No.BR05236639 «Kazakhstan's path to a knowledge-intensive economy based on the third technological modernization: strategy, models and mechanisms of development» (2018-2020) and No.BR10965247 «Study of factors, features and dynamics of demographic processes, migration, urbanization in Kazakhstan, development of digital maps and forecasts» (2021-2023) of RSE «Institute of economics» of Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan. The results implementation is confirmed by the act.

Publications. Basic results of research work were published:

– 1 article in an international peer-reviewed scientific journal that has a CiteScore percentile of at least 25 in the Scopus database;

– 4 articles in scientific publications recommended by the Committee for Quality Assurance in the Field of Science and Higher Education of the Ministry of Science and Higher Education of the Republic of Kazakhstan;

– 2 articles in collections of the above-mentioned international conferences.

Structure of the thesis. This thesis consists of five chapters (introduction, 1-3 chapters, and conclusion), references list, and appendixes. The total volume of the study is 151 pages of typewritten text, including 22 tables and 34 figures. The list of sources used contains 179 titles.

1 THEORETICAL AND METHODICAL BASIS OF PROJECT APPROACH IN REGIONAL DEVELOPMENT AND GROWTH

1.1 Region as an object of management within the context of development and growth. Regional diversity specificities of the Republic of Kazakhstan

Contemporary Kazakhstan is characterized by an exceptional diversity of regions that demonstrate dissimilar conditions and characteristics of economic activity, different levels of development, structure of economic management and specialisation. The regions of Kazakhstan have different starting positions, natural resources, geographical location, climatic factors, production potential and infrastructure.

The notion of territorial area, its structure and management system, region as a point of functional and economic processes localization, is included in the basic conceptual apparatus of regional economy. Depending on goals, objectives, subject of research and need of management practice, certain principles for identifying regions are applied. Academician A.G. Granberg notes: «... for the economy, the most important is singling out regions from the perspective of administrative and economic management, the place in the territorial division of labor, functioning of labor markets, goods and services, typicality of socio-economic difficulties, etc.» [4].

In this thesis, the concepts of region, territory and oblast are being used. Other notions related to theories of regional management and development, such as «aquatory», «geotory», «aerotory» are not applied in this work.

To solve problems of present research, we consider a concept of «region» as an object of management. Studying content of this concept is necessary because its meaning and interpretation influences goals of regional project management.

There exists plethora of interpretations of region concept. So, at the moment definitions amount to about 100. We examine basic definitions presented in scientific literature.

Region (from Latin it is a region, oblast, locality, area, country) is a limited territory with particular and specific economic, natural-geographical, socio-demographic and historical conditions of functioning and development.

A. Markusen describes a region as a synthetic conception, in particular «a historically evolving compact territorial community that contains physical content, a socio-economic, political and cultural environment, as well as a spatial structure, different from other regions and territorial units, such as a city or nation» [5]. According to this definition, regions were formed on the basis of ethnic groups living in the same territory and interconnected by socio-economic interests.

Fujita and Krugman present region as a spatial specific formation, diverse by scale (ranging from groups of adjacent states to small area agglomerations) and subject content (natural, administrative, economic, historical-cultural and other) territorial units [6].

Among the variety of approaches to the definition of «region» it is necessary to specify the following:

– geographical, region is a territorial-spatial unit with established boundaries (a territory, uniting a group of countries; aggregation of several territorial units; within an administrative-territorial unit; a part of administrative-territorial unit);

– managerial: in this approach, region is a form of management organization, at the same time a part of country's government structure;

– administrative approach, according to which a region is an area with administrative-territorial boundaries, governing bodies and joint authority;

– social: region is a territorial organization of a community of people, where a center of attention is a reproduction of social aspect of the population's livelihood;

– economic: region is considered as a part of county's economic complex, with production structure, social sphere and its own set of reproductive relations;

– socio-economic: region is a system that stipulates a relationship between economic processes results, life quality and welfare of population.

Because of its multidimensional nature, region is consistently viewed as a complex system with plethora of interconnected and interdependent elements with its own structure, complex composition and opportunity for development and improvement. Region – system that consists of subsystems and components such as natural-ecological, social, institutional and economic. The system has the appropriate characteristics: primary fundamental (integrity, emergence, complexity, controllability, hierarchy, synergy, independence, polyfunctionality, adaptability, non-additivity, robustness, interaction of components) and derived properties (functional flexibility, structuredness, stability, purposefulness).

In the study, we take into account an interpretation of region term in accordance with following variants of one of the regionalism founders academician A.G.Granberg:

– region – quasistate;
– region – quasicorporation;
– region – market areal;
– region – society [4].

Region as a quasistate represents a separate subsystem of the state and economy. The concept of decentralization, implying the delegation of administrative rights and powers from the center to local executive bodies (LEB), underlies this paradigm. Herewith a special place is occupied by the improvement of the interaction block between state, regional and interregional structures.

Region as a quasicorporation means that region is a subject of ownership and a participant in economic activity. Regions are becoming players in the competitive field of capital, services and goods markets. Creation of new brand name and protection of domestically produced trademark, control of imports and supplies from neighboring regions.

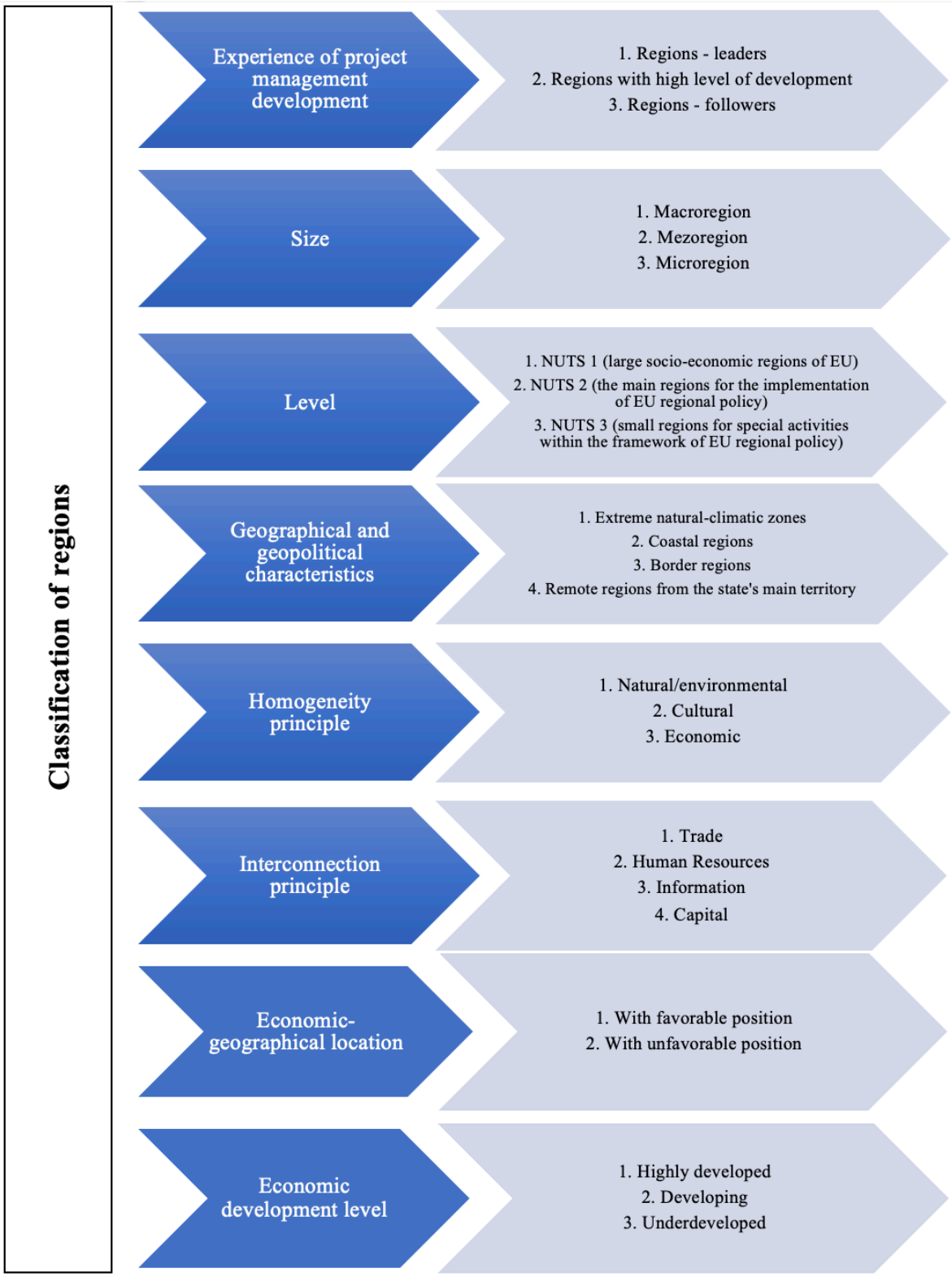
Region – market presupposes the presence of business conditions, in particular business climate, tax regime, legal and legislative aspects, as well as the specificity and quality of various markets, characteristics of human resources, financial institutions, etc.

Region as a society implies the reproduction of social life, where the main attention is paid to issues of education, health care, culture, environmental problems and settlement system.

Many approaches to the analysis of regional problems, concept of region and its functions have determined the presence of a significant number of regional classifications and typologies. The following factors primarily serve as criteria for classifying regions:

- level and rate of region's socio-economic development;
- type of territorial structure;
- population density;
- demographic profile;
- nature of production specialisation;
- investment potential, attractiveness, climate;
- innovative development;
- cluster potential level;
- political orientation;
- regional, budget and tax policies and other.

It should be noted that there is a difference between the classifications of regions developed by Russian and foreign researchers. While European classifiers are more problem-oriented, Russian ones are focused on the policy of polarized development of territories. Based on a generalization and analysis of existing typologies identified by various authors, the classification of regions is presented in Figure 1.


Classification of regions
Experience of project management development
1. Regions - leaders
2. Regions with high level of development
3. Regions - followers
Size
1. Macroregion
2. Mezoregion
3. Microregion
Level
1. NUTS 1 (large socio-economic regions of EU)
2. NUTS 2 (the main regions for the implementation of EU regional policy)
3. NUTS 3 (small regions for special activities within the framework of EU regional policy)
Geographical and geopolitical characteristics
1. Extreme natural-climatic zones
2. Coastal regions
3. Border regions
4. Remote regions from the state's main territory
Homogeneity principle
1. Natural/environmental
2. Cultural
3. Economic
Interconnection principle
1. Trade
2. Human Resources
3. Information
4. Capital
Economic-geographical location
1. With favorable position
2. With unfavorable position
Economic development level
1. Highly developed
2. Developing
3. Underdeveloped

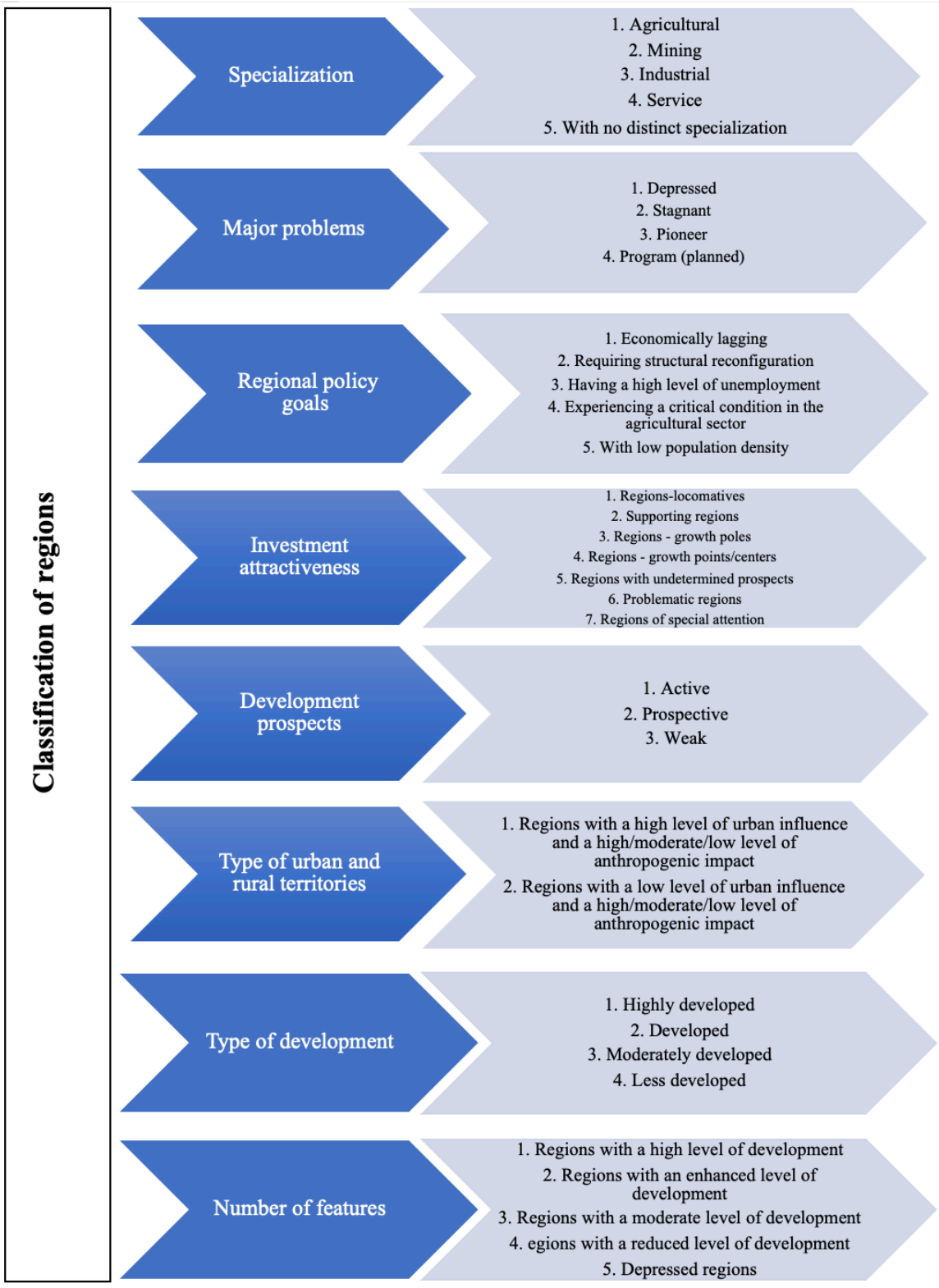


Figure 1 – Classification of regions

Remark – compiled by author from sources [7-9]

Considering the importance of project management in the development of regions, it is necessary first of all to study the role of region in management. Scholars and practitioners describe the notion «region» in terms of not only its traditional origin

from the Latin «regio» (direction, border), but also pay attention to its origin from «regere» (to lead, guide, manage). Thus, this concept contains two components: spatial and form of ownership. Region means an administrative region, in particular an area organized according to a managerial principle and having general powers. Most researchers and experts position the region as a subject or entity of a state or country. So, for example, V.I. Butov and V.G. Ignatov interpret this concept as follows: «A region is a territory within the administrative boundaries of the Russian Federation, characterized by following fundamental features: complexity, integrity, specialisation and controllability, i.e. the presence of political and administrative governing bodies» [10].

Because the origin of the term «region» from the word «manage» (regere), the phenomenon of management and its aspects should be studied in more detail.

Management is the activity of organizing processes to achieve the established goals and objectives. Management is the influence of a subject on an object to maintain it in a certain state or transfer the state to another level of development. Management includes foresight, forecasting, planning, organizing, coordinating, regulating, controlling and analyzing.

Quite often two notions «management» and «governance» are used interchangeably. In general, these concepts are comparable, except that the concept of «governance» is more extensive and is used in many types of activities and different areas and fields. The term «management» is used and applied to the management of socio-economic processes at the level of a company, enterprise, organization involved in market relations.

Theory of management, as a system, includes four elements: ontology (definition of subject and object); axiology (formulation of management goals based on social needs); epistemology (analysis of the state of an object ensuring the fulfillment of specific needs and requirements); praxeology (choice of priorities) [11]. From this it follows that management theory can be studied from various perspectives, depending on the research task and the main emphasis of management concept interpretation.

In management theory, the whole process is divided into groups of actions, united by an identified feature. Action groups are management functions. Management encompasses a range of diverse functions. Management functions were first identified by the French engineer Henri Fayol. Five management functions were defined: planning, organizing, commanding, coordinating and controlling. Moreover, all functions were distributed and divided into following six groups: production, commercial, financial, administrative, safety.

Management functions are classified into two large groups, such as general (basic, universal) and special (specific, concrete).

General functions form the basis of management process and are characterized by presence of stages and phases. Management in this case can be represented as a sequential chain, cyclically repeating the main functions: planning, organizing, motivating and controlling.

General functions are closely connected to each other and, as a rule, are implemented in parallel, with the possibility of returning to the previous stage to change management decisions.

The planning function entails the specification of objectives, identification of conditions and criteria, determination of tasks, means, deadlines, and required resources, as well as assigning responsibility for results. In practice, this function is realized in the form of designing management strategy and tactics, which consists of elaborating a promising direction for the development of the management object, preparing it for changes and confronting unfavorable external and internal factors of a market economy.

The organizing function involves the process of arranging the subject and object of management in such a way that each element contributes to the overall success of the institution. Herewith this function provides creation, preservation and development of the department's structure and its individual components. This process includes the formation of temporary and continuous relationships between divisions of the department, determining the order, conditions and norms of its functioning. Organizing is expressed in the unification of people, methods and means to achieve the established goals of the institution.

The motivating function is associated with the choice of a system of payment and incentives for employees of the organization. Motivating is the process of encouraging employees to act to attain personal and organizational goals. There are content and process theories of motivation. Content theories focus on the motives and needs of people, while process ones are not limited to the needs of the individual, but are built on the basis of the theory of expectations (a high probability of achieving a goal, receiving rewards, and therefore satisfaction) and the theory of justice (dependence of costs-results-reward; comparison with the results of other workers).

The controlling function allows evaluating and comparing the actual results with those planned. On the one hand, this is a separate function, on the other hand, it is an element of each general management function, i.e. component of planning, organization and motivation. The control system involves maintaining discipline and should capture deviations, violations and errors, and also includes their prevention, correction and elimination. Controlling contains three stages: 1) approval of criteria and standards; 2) comparison of real indicators with established ones; 3) carrying out corrective measures. The main idea of controlling is the timely recognition of inconsistencies and deviations. Corrective measures are carried out based on identifying the causes of deviations. The goal here is to return to approved norms and standards.

Special functions are delineated based on the direction of institution's activities and are associated with specific management objects. Among traditional special functions are administrative, technological, production, economic and social functions, which in turn encompass the functions of managing basic production, capital construction, material and technical supply, personnel, finance, marketing, quality, office work, etc.

The functions discussed above are also typical for regional management system. However, taking into account the peculiarities of the category of regional activity, its

individual aspects, goals, content, basic provisions and principles, there are distinctive features in the functions of regional management.

The general functions of regional management include regional forecasting and planning, regional programming, organizing, coordinating, regulating, stimulating, monitoring, controlling, analyzing the regional system.

Considering the region as an object of project management, we determine the goals of regional management depending on different interpretation of concept itself. As mentioned earlier in the work, the region is studied from different perspectives and approaches, which significantly influences the goals and objectives of managing the region (Table 1).

Table 1 – Content of regional project management goals

Approach to term formation	**Definition of «region»**	**Goal of regional project management**
Politico-legal	Subject, administrative-territorial unit of the state that has the authority to carry out socio-economic policy within the appropriate scope, divided between central and local executive bodies.	Ensuring effective and sustainable development of the region and implementation of project management within the framework of national priorities. In addition, it is necessary to take into account the peculiarity of each region, including dominant advantages and resource potential.
Economic-geographical	A certain part of the country with a specific area and geographic location affecting industry specialisation and production location.	Optimal use of natural resources and rational industrial location to achieve the successful implementation of regional and national projects and programs.
Sociocultural	The form of territorial organization of social structure in synthesis of aspects of national history, traditions, language, culture, as well as economic interests.	Ensuring the effectiveness of programs and projects for the development of the sociosystem to improve the living standard and welfare of region's population. Realization of health, demographic, educational, environmental and other policies.
Corporate	Economic subject of regional and state ownership.	Regulation of economic relations in programs and

Approach to term formation	Definition of «region»	Goal of regional project management
		projects of territories. Maximizing the economic effect from functioning of project management system in the region. Management of state property and regional budget. Increasing the competitiveness and attractiveness of region.
Remark – compiled by author from sources [12-14]		

Before moving on to an overview of the regional diversity of the Republic of Kazakhstan, it is necessary to clarify the understanding of essential characteristics of regional development and growth, as well as present theories associated with these categories.

Development means improvement, renewal, positive change, transition from one (lower) state to another (higher). According to Longman, development is understood as «the growth or improvement of something in such a way that it leads to its increase and progress» [15]. Moreover, the goal of development is the growth of something in size, quantity, degree, quality, etc.

Regional economic development contains a number of elements, including such fundamentals as prosperity, progress, competitiveness, welfare, well-being, improving the quality of people's life by raising their standard of living, self-esteem and freedom. A similar description can be found in the documents of the UN Committee of Experts: «Development concerns not only man's material needs but also the improvement of the social condition of his life. Development is, therefore, not only economic growth, but growth plus change– social, cultural and institutional as well as economic» [16]. Another authoritative organization supplements this definition as follows: «Qualitative change and restructuring in a country's economy in connection with technological and social progress» [17].

«Regional development is a broad term but it can be seen as a general effort to enhance well-being and living standards in all region types, from cities to rural areas, and improve their contribution to national performance and more inclusive, resilient societies» [18].

The reasons for studying and measuring the level of regional development are diverse, but a significant argument over the years has been the pronounced disparities in the well-being positions of regions and countries, which are notably persistent in nature. In turn, this leads to regional, social inequalities and inequalities in people's living standards. For example, in 1960, in the richest country in the world, income per capita was 39 times higher than in the poorest; in 2021, the gap has increased to 65 times [17].

Delving deeper into the term of regional economic development, Stimson et al. interpret the concept from two sides, as a process and as a product [19]. Product from

the point of view of measuring the qualitative and quantitative results of changes, process as a tool for changes. Regional development is proposed to be considered in the form of a matrix containing the listed elements (Table 2).

Table 2 – Regional development as a matrix of qualitative, quantitative process and product outcomes

	Qualitative	**Quantitative**
Process (tool)	Policy Strategy Planning Project Management	Analysis Resource application Evaluation Tools and techniques of Project Management
Product (indicator)	Social/financial equality Sustainable development Quality of life Employment Digital literacy	Standard of living Income Goods and services Financial security Cybersecurity

Remark – adapted from source [19]

Summarizing the previously presented interpretations of regional development, we define the term as an improvement and product of economic change at the regional administrative level over a long period of time. Furthermore, this implies the application of economic processes and resources available to a region, leading to sustainable development and desired outcome that meets the expectations, requirements and values of businesses, residents and visitors.

Regional development is linked with many factors such as economic growth, poverty and unemployment reduction, equal distribution of resources, employment, innovation, welfare, competitiveness, etc. However, the classical approach to regional development sets economic growth as one of the main goals.

Traditionally, economic growth is expressed in terms of GDP (gross domestic product) and GDP per capita growth. International organizations additionally propose to see the changes in GNP (gross national product), income and employment as indicators for measuring growth. Consultants from the World Bank note two paths of economic growth: extensive and intensive. Extensive growth is realized by increasing the use of resources, which leads to quantitative growth, but not qualitative growth; intensive growth involves the efficient use of the same resources and improved quality. Thus, development requires intensive economic growth, leading to increased incomes and living standards.

In studies of various authors, there is an interchangeable use of the concepts of regional development and growth, and in some cases there is an interpretation that has the same meaning and content. This is because economic growth was initially

considered as a direct variable of economic development. Over time, due to growing criticism regarding the use of GDP as an indicator for measuring economic growth and its incompleteness, new ideas and proposals for indicators of development of regions and countries began to appear. GDP no longer reflected new aspects of life and business. Most modern indicators and indices are developed for the country level, but there are also regional and city development indicators. Among the relatively new development indicators are Human Development Index (HDI), inequality coefficient, Happy Planet Index, and the Better Life Index. In this study we apply classical methods for measuring regional development and growth, in particular GDP, GRP, income, and the inequality index.

Analysis of the conceptual and terminological apparatus of regional development, growth and management allows determining the origins of regional science that is associated with the names of such scholars as J.H. von Thünen, W. Launhardt and A. Weber, A. Lösch, W. Christaller whose ideas influenced the future formation of regional theory. The main research concept of classical regionalists was the location theory, including such notions as a system of concentric circles, minimization of production costs, transport costs, pricing, etc.

The 20s of the last century were marked by the introduction and study of additional factors of the location of productive forces. Classic standarts (optimal location, placement) have become the subject of criticism. A. Predjol denied the possibility of using mathematical methods to calculate optimal localization points. T. Palander suggested to include factors such as demand, resource prices and the option of using alternative technologies [20]. Keynesian theory, which emerged during this same period, explained the need for government intervention in managing the economy and social consequences. According to Keynesian ideology, government policies can stimulate economic growth.

The 50s are characterized by a series of regional theory studies and an emergence of term «Regional Science», introduced by American scholar Walter Isard. Regional science is broader than regional economics and represents a new interdisciplinary direction. The synthesis of results, achievements and capabilities of social sciences, management, regional economics, geography, ecology, and political sciences constitute the concept of a unified science of regions [21].

In the period of 50-70s, the leading position was occupied by the theory of growth poles, proposed by the French researcher F. Perroux and his follower J. Boudeville. The interpretation of growth poles is associated with the concentration of development impulses in certain industries (enterprises), as well as in specific territories (a set of cities) [22, 23].

Since the 70s, scientific ideas and achievements in regional science have been linked with the names: H. Giersch, N. Kaldor, H. Richardson, J. Stiglitz, etc. Changes in regional policies conducted by governments of different countries were influenced by the emergence of new concepts that focused on the micro level – a region, its competitive potential and development, and as a consequence the reduction of interregional inequality. The components of these concepts were innovation, technical progress, competitiveness, and business support [24].

The 90s are identified with the emergence of agglomeration and cluster theories, concepts of global commodity chains and networks, and models of regional innovation systems. A significant contribution to the development of these areas was made by researchers P. Krugman, P. Romer, M. Porter, P. Cooke, G. Gereffi, M. Castells, etc. Within the framework of cluster approach, the concept of «smart specialisation» of regions was subsequently developed by the authors that was performed by D. Foray, P. David and B. Hall. Today, the smart specialisation platform includes 170 regions from 20 countries. In the context of regional administrative management, in the 90s, decentralization trends began to appear, containing elements of delegation and assignment of responsibility for the development of regions to local authorities and stimulation of local initiative.

Modern models of regional science are built on the basis of a number of elaborations devoted to issues of interterritorial and intersectoral interaction, mutual influence and interconnectedness, caused by division of production processes and blurring of boundaries, networking of business organizations. The latest new ideas of regional approaches are aimed at studying the model of planning-program-project management of regional development, urbanistic models, big data models, empirical model of «related» and «unrelated» variety, spatial lags, LandSHIFT model, smart city, creative city, inclusive and sustainable development, etc. Research in these areas is presented in the works of T. Hirano, D. Murakami, L. Yin, W. Oueslati, S. Alvanides, G. Garrod.

In general, the entire spectrum of regional science theories and methodologies in current realities is oriented toward finding effective mechanisms for reducing uneven regional development, decreasing inequality, and ensuring sustainable regional development and growth. The systematization of theoretical teachings of regional science is presented in Table 3.

Table 3 – Theories and models of regional growth and development

Theories	**Authors**	**Critical content points**
Classical	A.Smith, T.R.Malthus, D.Ricardo, J.S.Mill	• Division of labour • Main growth driver is technological progress • Specialisation of production • Absolute advantage • Interregional trade and network
Keynesian	J.M.Keynes	• Development – inequality reduction • Convergence • Principal factors: capital, labour и technology • Government intervention and regional support
Export-based	C.N.Douglass, C.Tiebout, R.Andrews, J.R.Meyer	• Growth depends on export • Exogenous factors of growth

Theories	Authors	Critical content points
		• Competitiveness in domestic and international markets
Neo-classical	F.Ramsey, R.Solow, T.Swan, A.Marshall, J.B.Clark	• Growth factors: capital accumulation (savings), labour resources, labour productivity and technological progress. Under equilibrium conditions scientific and technological progress is the single growth factor • Concept of supply and demand • Marginal productivity of labour and capital • Secondary role of state and government • Perfect mobility, competition, information & accessibility of the production factors
Endogenous	P.Romer, R.J.Barro and X. Sala-i-Martin, G.M.Grossman and E.Helpman	• Endogenous approach to certain factors of production • Development means reducing inequality • Knowledge, human capital, innovation determine growth • Convergence and divergence
New economic geography	W. Isard, G.D.Harris, A.R.Pred, P.Krugman, A.J.Venables, M.Fujita, T.Mori	• Introduction of spatial factor into the models • Interregional and international trade (new trade theory), globalization • Imperfect (monopolistic competition), increasing returns to scale, incomplete, imperfect information and knowledge • Effect of agglomerations on regional development and growth • Uneven development of territories due to established specialisations of production and industries • Possible government interventions in economic processes
Growth poles	F.Perroux, J.Boudveville, P. Pottier, G.Myrdal, N. Kaldor, A.Hirschman, J.Friedmann, H.Richardson	• Development through leading industry • The spaces in which leading enterprises are located become the center of attraction of production factors that leads to concentration of enterprises and the formation of growth poles • Models of location of regional production systems
Production location	J.H. von Thünen, W. Launhardt и A. Weber, A.Lösch, W. Christaller	• Optimal production location schemes • Factors of production systems location (transport accessibility, expenditures and

Theories	Authors	Critical content points
		production costs, labour resources costs, cost minimization, profit maximization)
Innovation growth	T. Hagerstrandt, E.M. Rogers	• Modeling the diffusion of innovations • Three diffusion models: network, hierarchical, neighborhood diffusions • 4 stages of innovation: inception, diffusion, accumulation and saturation
Cluster-based	M. Porter, M.J. Enright, J. Cortright, S.A.Rosenfeld, M. Storper, P. Maskell, M.O. Lorenz	• Clustering is the basis for the development of economic systems and solving the problems of less developed territories • Competitiveness of a company is based on the economic environment (cluster structure, group of interconnected organizations)
Global commodity networks and chains	G.Gerrefi, M.Korzeniewicz, M.Castells, K.Kelly, W. W. Powell	• Models of value creation chain management • World trade • Network organization and society's interaction
Institutional	T.Veblen, W.C. Mitchell, J.R. Commons, J.K. Galbraith, D. North, T.Eggertsson	• Direct and reverse influence of institutions (formal and informal) on growth and development • Role of institutions in forming relations between economic agents, determining economic behavior and development of territories • Impact of institutions on production factors
New paradigms	D. Foray, P. David & B. Hall, D. Davis, D. Weinstein, L. Yin, R.Schaldach, J. Alcamo, M. Heistrrmann, K. Frenken, F. Oort, W. Oueslati, S. Alvanides, G. Garrod, T. Hirano, D. Murakami	• Planning-program-project management • Smart specialization of regions • Creative cities • Urbanization concept • Smart city • Big data models • Empirical models of spatial lags • Model of related and unrelated variety • LandSHIFT • Artificial Intelligence technologies
Remark – compiled by author from sources [25-46]		

The development of theories and teachings of regional science has not formed one generally accepted standard synthetic model applicable to the management of different types of regions. Each historical period is characterized by specific peculiarities that influence the need to create methodological approaches that

correspond to a particular time. A review of the history of theoretical thought in the field of regional science is an important stage in mastering modern trends.

Turning to the consideration and study of regional diversity of the Republic of Kazakhstan, it should be emphasized that the several elaborations and models of spatial development have been applied and adapted to the management of regions of our country.

According to the Law «On the Administrative-Territorial Structure of the Republic of Kazakhstan», a region is a part of the territory of the Republic of Kazakhstan, including several settlements, formed and managed in the interests of the Republic of Kazakhstan. Regions are oblasts, districts and rural okrugs as the main links of the republican administrative-territorial structure [47].

In 2021, there exist 17 regions in the Republic of Kazakhstan, of which 14 regions (Akmola, Aktobe, Almaty, Atyrau, West Kazakhstan, Zhambyl, Karaganda, Kostanay, Kyzylorda, Mangystau, Pavlodar, North Kazakhstan, Turkestan, East Kazakhstan) and 3 cities of republican significance (Astana, Almaty, Shymkent) [48]. Each region is unique and has distinctive peculiarities, both economic and social characteristics. It is extremely important to preserve historically established characteristics and discover new potentials and prospects for the development of country's regions.

Akmola region, formed in 1939, is located near the developed regions of the Russian Federation such as Ural, Novosibirsk, Tomsk, Tyumen, Omsk regions. Long-term economic and trade relations and connections have been established with these regions of Russia. The center of the region is in Kokshetau, that was built in 1824.

Throughout an extended period of time, agriculture has remained a key sector of the economy. Goods produced in the region are exported to following countries: China, Russia, Turkey, UAE, Uzbekistan, Tajikistan, Afghanistan, Iran, etc. Due to the presence of deposits of ferrous, non-ferrous and rare metals, building materials, coal, therapeutic muds, mineral waters in the region, projects implemented within the framework of the SPIID Program have been launched. These projects contributed to the growth of labor productivity and the creation of new additional jobs. The industrialization map of region includes 142 projects worth 669.5 billion tenge with the creation of 13.2 thousand jobs, and the Roadmap for digitalization of industry contains 11 projects at 7 enterprises of the mining and metals industry, mechanical engineering, construction and chemical industry with an investment amount of 1.9 billion tenge. Large-scale SPIID projects are Kazakhaltyn Technology LLP, Altyntau Kokshetau JSC, ENKI LLP, Astana Nan Chemicals LLP, Kokshetau Mineral Waters JSC, Makinsk Poultry Factory LLP, etc. The realization of projects continues in the areas of tourism, agro-industrial complex, mining and metallurgical complex, processing, machine manufacturing, construction, chemical industry [49].

The development of the tourism industry in the region is carried out thanks to the resort of Burabay, the mountains of Kokshetau, Okzhetpes, and the glade of Abylay Khan (an object of sacred places). The largest projects in the field of tourism in the region are Rixos Borovoe hotel, Okzhetpes health resort, Shchuchinsky and other.

Aktobe region is dynamically developing and thriving in the north-west of the republic. Formed in 1932. The center of the region is in Aktobe city, founded in 1869.

It is assumed that the chronicle of the Aktobe region, originating from the foot of the Mugolzhar Mountains, dates back thousands of years. Aktobe land is the birthplace of such historical figures as Abulkhair Khan, Kobylandy Batyr, Aiteke bi, Aliya Moldagulova.

The region is distinguished by its developed industry, rich history, strong economic potential, and high social dynamics. The region is the first largest region in the country. It occupies a favorable and advantageous geographical position at the junction of Europe and Asia and borders in the north with Orenburg region of the Russian Federation, in the south with Karakalpak region of Uzbekistan. The transcontinental highway from Europe to China and the new North-South economic corridor, built by Russia and India, run through the region.

Aktobe region ranks 1st in the CIS and 2nd in the world by chromium reserves, 3rd in Kazakhstan by the oil and copper ore reserves. Also in the depths of the region's earth there are 55% of nickel, 40% of titanium, 34% of phosphorites, 4.7% of zinc, 3.6% of copper, 2% of aluminum, 1.4% of coal from the total reserves in the republic. There are approximately 10% of proven and 30% of predicted hydrocarbon reserves (oil, gas and condensates).

The oblast is in 2nd place by pasture area in the country. There are 27 million hectares of agricultural land here. In addition, Aktobe region is a leader in house construction. Thus, at least 1 million square meters of housing are put into operation every year.

In general, the diversified industrial structure of the region covers the mining and metallurgical complex, oil refining, machine manufacturing, chemical, food, light and construction industries. There are more than 1000 enterprises with foreign participation [50].

Almaty region, located in the southeast of Kazakhstan, was founded in 1932. Until 2022, the center of the region was Taldykorgan city (founded in 1944). From May 2022, Konaev city (formerly Kapchagai) becomes the center. A significant advantage of the region is transit opportunities and the location of a large checkpoint in Central Asia «Nur Zholy», the international point «Khorgos» and the dry port of the SEZ «Khorgos - Eastern Gates». This is explained by the geographical location of the region, bordering with China in the east and Kyrgyzstan in the south.

Basic specialized industries include agriculture (27% of workers are employed in the field), manufacturing and tourism. The created industrial zones of the oblast make it possible to implement large-scale projects in agriculture, food, construction, light, chemical industry, mechanical engineering, machine manufacturing and pharmaceutics.

The region provides Almaty metropolis with various goods. Companies of world brands such as «Efes», «Coca Cola», «Danone», «RG Brands Kazakhstan», «FoodMaster», «Khamle» operate in the region. The country's sole manufacturer of rechargeable batteries, «Kainar AKB» LLP, functions here. «Glasman» LLP and «TF Azhar» LLP supply clothing products for citizens and special services, respectively.

Historical objects of interest to tourists encompass the historical and cultural center «Atameken» of the first president of the Republic of Kazakhstan, the museums

«Batyr Babalar», «Anaga Kurmet», the museum of Zhambyl Zhabayev, Ilyas Zhansugurov, etc.

Major tourist sites include Alakol, Balkhash, Kolsai Lakes, Charyn National Park (including Charyn Canyon), the highest waterfall in Kazakhstan Burkhan-Bulak, Tamgaly-Tas and so on. [51].

Atyrau region is located in the west of the country. Formed in 1938. The center is in Atyrau, located on the Ural (Zhaiyk) River (founded 1640). It borders with the Astrakhan oblast of Russia.

The main economic sector of the region is oil production. There are also rich reserves of natural resources of borate, potassium and sodium salts, gas, etc. Significant industrial complexes of the region are Atyrau Oil Refinery, «Tengizchevroil» LLP, «KazMunayGas» JSC, North Caspian Operating Company.

Atyrau region is a leader in many economic indicators, including the highest GRP per capita, the volume of investment in fixed assets and average wage. 73% of the republic's hydrocarbon reserves are concentrated in the region.

The core areas of development are the oil industry, machine manufacturing, fishing industry, agro-industrial complex and construction industry.

The geographical location on the path of transit and economic relations with the states of Central Asia and its close location near Urals and Volga regions had a significant influence on the formation and development of transport and logistics system of the region. At the current period, all types of transport are involved in the Atyrau region: air, rail, water and road [52].

West Kazakhstan region, occupying the western part of the republic, was founded in 1932. The center is located in Uralsk city (founded in 1613, according to some sources approximately 1584 as the city of Yaitsky). The region shares borders with five regions of the Russian Federation: Orenburg, Astrakhan, Volgograd, Saratov and Samara.

The industrial-agrarian orientation of West Kazakhstan economy allows the region to maintain its current position in the top five leaders by metrics of GRP per capita in the republic. Enterprises of oil and gas production, mining, oil refining, metallurgy, machine manufacturing, defense, food and clothing industries are concentrated in the region.

The base companies are «Karachaganak Petroleum Operating», Instrument-Making Plant «Omega» JSC, «Zhaikmunai», «Ural Plant «Zenit» JSC, «Condensate» Holding, «Gidromash-Orion-MZHBK» LLP.

The region contains deposits of gas, gas condensate, oil, keramzite clays, oil shale, alluvial and construction sand, potassium-magnesium salts, and borate ores. 99% of the total volume of gas condensate production and 47% of the volume of gas production in the country is provided by West Kazakhstan region [53].

Zhambyl region, named after the poet-akyn, winner of the Stalin Prize, Zhambyl Zhabayev, was formed in 1939 in the south of the country. The center of the region is Taraz (formerly Dzhambul or Zhambyl, founded in 1864). In the south it borders with the Kyrgyz Republic.

The territory of the region is rich in deposits of phosphorites (71.9% in the republic), fluorspar (68%), gold (8.8%), copper (3%). There are also reserves of non-ferrous metals, uranium, coal, barite, gypsum, salt, and building materials.

The majority of gross product is made up of manufacturing, agriculture, transport and communications, and trade.

The region ranks 3rd in the republic by the volume of explored groundwater reserves (40 deposits with established operating funds have been discovered). In addition, there are 2 deposits of curative mineral water reserves in the region: Merkenskoye and Uzynbulak-Arasan.

Prospects for the development of domestic and international tourist destinations are inherent in the region. This is due to historical conditions, in particular the passage of the Great Silk Road through the territory of region: Sairam-Taraz-Aksholak-Akyr-tobe-Kulan-Merke-Shu-Aspara-Kordai. Unusual and unique historical and cultural monuments are located on this strip. Zhambyl region is included in the list of regions involved in the State program «Revival of historical centers of the Silk Road, preservation and continuous development of the cultural heritage of Turkic-speaking states, creation of tourism infrastructure» [54].

Karaganda region was formed in 1932 in central part of the country, in the very heart of the Eurasian continent. The capital of region is Karaganda (founded in 1934).

In 2021, this was the largest area in the republic – 428 thousand sq.m. The region is also one of the largest in terms of industrial reserves, raw materials and mineral bases.

Main directions of the economy: electric power, non-ferrous and ferrous metallurgy, mining, chemical, manufacturing, machine manufacturing.

The region contains significant balance reserves of gold, coal (Karaganda coal basin), copper, lead, molybdenum, zinc, oil, gas, wolframium, iron, etc.

Until 2022, the region’s deposits included the largest Zhezkazgan copper ore deposit, the assets of which belong to the holding company «Kazakhmys Corporation» LLP [55].

Kostanay region was formed in 1936 and is located in the northern part of the republic. The capital of region is Kostanay on the Tobyl River, founded in 1879. It borders with three regions of Russia: Chelyabinsk, Orenburg, Kurgan.

Rich reserves of minerals and mineral raw materials are concentrated in the region. The subsoil contains mining complexes of iron, gold, silver, nickel, bauxite, asbestos, coal, limestone, brick clay, building stone, glass sand, etc.

The main sectors of the region's economy are mining, manufacturing, including advanced machine manufacturing and agriculture. About 900 enterprises are engaged in the production of industrial products.

Today, the machine manufacturing industry in the region is actively expanding. The production and assembly of cars of the brands «LADA», «Kia», «Renault», «Chevrolet Nexia» has been launched. Projects are being implemented to produce specialty vehicles, special equipment (ambulances, municipal equipment), agricultural equipment, auto components, combine harvesters, tractors, etc. [56].

Kyzylorda region, located in the southern part of the country, was formed in 1938. The center of the region is located in Kyzylorda city on the Syrdarya River

(founded in 1820). In the south it shares common borders with the Republic of Uzbekistan.

Kyzylorda city was the center of the Great Silk Road, there are about 500 historical ancient monuments to heroes, philosophers, poets, composers, sages (dating back to the Middle Ages), which is a heritage of Kazakh culture and people. In addition, the Kyzylorda region is the birthplace of the great Turkic-speaking thinker and musician Korkyt Ata.

The region's economy is predominantly industrial-agrarian specialization. Significant volumes of hydrocarbon raw materials (crude oil, gas), non-ferrous and ferrous metals, limestone, table salt, uranium, medicinal salts, construction and quartz sands are available in the region. The region ranks 1st in Kazakhstan in terms of vanadium reserves, and in 3d place in terms of uranium, lead, and zinc resources.

90% of the country's gross rice harvest is provided by Kyzylorda region. The region is among the leaders in implementing projects in the livestock industry. The fishing industry is also developing in the region (11 fish processing plants). The Small Aral Sea, the Syrdarya River and 207 lakes of local importance make it possible to introduce and expand programs and projects in the fishing industry [57].

Mangystau region in the southwest of the country was formed in 1973. Until 1990 it was called Mangyshlak, after which it was renamed to Mangystau. The administrative center of the region is Aktau city (founded in 1963), which serves as a port on the Caspian Sea. The region has common borders with Uzbekistan and Turkmenistan.

At the moment, Mangystau oblast is the only region in the country that is autonomously equipped with all types of energy and water generated at the Mangyshlak Nuclear Power Plant.

The priority oil and gas industry is a driver of regional economic development. The earth is rich in reserves of oil, gas, phosphorite, strontium, brown coal, manganese, uranium, salts and so on.

The production volume of oil and gas sector accounts for 90% of total industrial volume of region. 30% of the republic's oil is produced in this region. About 60 deposits have been explored in the territory. Large enterprises are «Exploration Production «KazMunayGas» JSC, «Mangistaumunaygas» OJSC, «Karazhanbasmunay» OJSC, Mangyshlak Nuclear Power Plant («Kazatomprom» subcomplex, provides autonomous energy and water supply to the region, it includes a unique water desalination complex), «Shlumberger», «Arcelor Mittal», etc.

International transport corridors «North-South» and TRACECA, which provide connections between Northern Europe and the countries of the Persian Gulf and Eastern Europe and Central Asia [58].

Pavlodar region was founded in 1938 and is located in the northeastern part of Kazakhstan. The capital of the region is Pavlodar city on the bank of the country’s largest river, the Irtysh (founded in 1861, in 1720 it was called Koryakovskaya Stanitsa). The region has common borders with the Altai Territory, Omsk and Novosibirsk regions of Russia.

Pavlodar oblast is one of the leading industrial regions in Kazakhstan. More than a third of the republic’s coal reserves are located in the region. The largest deposits are

Ekibastuz and Maikuben. There are also 9 other coal mines located here. The main feature of deposits in the region is that deposits are located shallow, and this makes it possible to carry out open-pit mining.

Metallurgy, machine manufacturing, oil refining, production of alumina, construction raw materials, and electrical energy form the diversified industrial basis of the region's economy. The main enterprises of region include the Aksu Ferroalloy Plant – a branch of TNK «Kazchrome» JSC, «Pavlodar Aluminum Plant» («Aluminum of Kazakhstan» JSC), «Kazakhstan Electrolysis Plant» JSC, «Maykainzoloto» JSC, «Pavlodar Petrochemical Plant» LLP, «Bogatyr Komir» and other. The produced unuts are supplied to domestic and foreign markets in Russia, Belarus, Georgia, Germany, Japan, Sweden, Austria, etc.

The transport complex of region consists of railway, road, river and air, which makes it possible to organize a unified transportation network to ensure supplies to the CIS and non-CIS countries [59].

North Kazakhstan region is located in the northern part of Kazakhstan, created in 1936. The administrative capital is Petropavlovsk city, located on the Ishim River (founded in 1752). In the north it borders with the Tyumen, Omsk and Kurgan regions of the Russian Federation.

Agriculture, in particular the production of grain crops, represents the main specialization of the region's economy. Moreover, 25% of the gross grain harvest in Kazakhstan falls on North Kazakhstan region. There are 17 modernized dairy plants in operation.

The region has large reserves of country's mineral resources: 65% tin, 36.6% zirconium, 19% uranium, 5% titanium. The subsoil is rich in reserves of ferrous, non-ferrous and rare metals, gold, silver, coal, mineral waters and therapeutic muds [60].

Turkestan region is the most populous region of Kazakhstan, located in the south, formed in 1932. The center is located in the ancient Turkestan city. It shares common borders with the Republic of Uzbekistan in the south.

The priority direction of the economy is agriculture, including the cultivation and processing of cotton, fruits, vegetables, grapes, the production of fabrics, leather goods, caracul, tobacco products, etc.

Mineral resources concentrated in the region are iron, polymetals, coal, barite, oil, marble, limestone, etc. The 1st place in uranium reserves and 3d place in the balances of phosphorites and iron is occupied by this region of Kazakhstan.

Tourism in Turkestan region continues to develop. Being one of the centers of political and spiritual life of the Turkic world, the region attracts an increasing number of tourists not only from the republic, but also from abroad. The historical and architectural complex «Azret Sultan», ancient cities Otyrar and Sauran, Akmeshit cave, Arystan Baba mausoleum, as well as 4 UNESCO World Heritage Sites (Mausoleum of Kh.A.Yassavi, Aksu-Zhabagly Reserve, Sairam-Ugam National Park, Karatau reserve) are located here [61].

East Kazakhstan region is located in the eastern part of the country and borders the Russian Federation and the People's Republic of China. The administrative capital is Ust-Kamenogorsk city (1720).

East Kazakhstan oblast is one of the main producers of copper, zinc, lead, gold and silver in Kazakhstan, and the only one of titanium, tantalum, magnesium, and fuel for nuclear power plants.

The main economic sector of region is non-ferrous metallurgy. The territory of the region is rich in deposits of gold, non-ferrous metals (Ridder-Sokolnoye, Nikolaevskoye, Tishinskoye, etc.), copper, tin, zinc, lead, molybdenum, wolframium, coal, lignite, underground mineral and medicinal waters (Ust-Kamenogorskoye, Kuludzhunskoye, Bogatyrevskoye, Leninogorskoe), etc. Exploration and production is carried out by «Kazzinc» LLP and enterprises of KAZ Minerals Group. 283 deposits have been identified and explored, of which 233 are open for direct investment.

The machine manufacturing (production of cars, tractors, buses) and the production of construction and finishing materials (brick, portland cement, beton, stone products) are developed in the region.

Considering the agricultural sector, it should be noted that the region occupies a significant position in Kazakhstan in the production of velvet antlers (1st place), potatoes (3rd place), dairy products, meat, sunflower seeds, etc. 20% of the total volume of oilseeds in the republic is provided by East Kazakhstan region [62].

Astana city, the capital of the republic since 1997, is located in the northern part of Central Kazakhstan on the banks of the Esil (Ishim) River.

The ultra-modern metropolis of Kazakhstan occupies a leading position in terms of socio-economic indicators. Over a 25-year period, the city's economy experienced accelerated growth. The relocation of the center facilitated the development of metropolis, attracting significant investment and capital into the economy of Astana.

Trade, transport, communications, construction, tourism are the basic directions of development of the capital's economy.

Astana is the political, business, creative and cultural center of the republic. International symposiums, summits, conferences, exhibitions and networking events are organized here, which attract high-quality specialists from all over the world.

The city continues to grow and expand, impressing with the appearance and construction of unique and unusual architectural objects. Such creative structures include the following: the «Baiterek» monument, the The triumphal arch «Mangilik El», the Palace of Peace and Reconciliation, the largest mosque in Central Asia «The Grand Mosque of Astana», «Khazret Sultan» Mosque, the Palace of Independence, ethno-memorial complex Map of Kazakhstan «Atameken», «Kazakhstan» Central Concert Hall, «Khan-shatyr» Entertainment Center and much more.

The city's major higher education institutions include Nazarbayev University, the Academy of Public Administration under the President of the Republic of Kazakhstan, L.N. Gumilyov Eurasian National University, Kazakhstan branch of M.V. Lomonosov Moscow State University, «Astana IT University» LLP, Saken Seifullin Kazakh Agrotechnical University, etc. [63].

Almaty city is the largest financial, economic, business, trade, scientific, cultural and educational center of the republic and Central Asia. The city was created in 1854 in the southeast of Kazakhstan (Verny city).

During the 70-year period of its stay as the capital until 1997, the largest metropolis became a center of attraction and development of intensive economic, social

and cultural life of Almaty residents. Representative offices of international associations, financial structures and large capital companies are located here. The growth of trade potential and the expansion of international cooperation are facilitated by agreements within the WTO and the EAEU.

Almaty, over an extended period, ranks second in terms of Gross Regional Product (GRP), indicating the metropolis's significant contribution to the republic’s economic development.

Before collapse of the Soviet Union, predominant sectors were food, light and heavy industries. Currently, the basic directions of economic development of the city are trade, services, transport, tourism, and construction. A developed transport system, in particular the dry port of the Khorgos-Eastern Gate SEZ, the transnational corridor «Western Europe - Western China», allows expanding opportunities for global trade. The sole underground mode of transport in the republic, the metro, has been launched and is operating in Almaty.

All areas of tourism industry, including the ski cluster, ecotourism (hiking in the mountains, swimming in rivers), are being intensively adapted in urban and near urban areas. Event, ethnocultural and other types of tourism are also flourishing in Almaty.

Ski resort «Shymbulak», Koktobe, Medeo skating rink, Big Almaty Lake, Park of 28 Panfilov heroes, the Cathedral of the Holy Ascension, built without a single nail, many theaters (Abay Opera and Ballet Theater, Drama Theater named after M.O. Auezov, Russian Drama Theater named after M.Yu.Lermontov) and museums (Central State Museum of the Republic of Kazakhstan, Museum of Fine Arts named after A. Kasteev) make the southern capital of Kazakhstan unique.

The scientific and educational clusters of the city are actively developing thanks to the elaborations and research of the National Academy of Sciences, research institutes, and educational institutions (Satbayev University, Al-Farabi Kazakh National University, Kazakh-British Technical University, KIMEP University, International IT University, NARXOZ, Abai Kazakh National Pedagogical University and so on) [64].

Shymkent is the oldest city in Kazakhstan, which was created in the 12th century on the trade route from Central Asia to China. The city is located near the Republics of Uzbekistan and Kyrgyzstan.

Shymkent is the third largest metropolis and a large densely populated city with a developed industrial and transport infrastructure. There are enterprises in the non-ferrous metallurgy, machine manufacturing, oil refining, chemical, pharmaceutical, textile and food industries.

Priority sectors of the economy: industry, agriculture and tourism.

Large enterprises of the city: «PetroKazakhstan Oil Products» LLP (oil refining), «Standard Cement» LLP (cement production), «Khimpharm» JSC (pharmaceuticals production), «Shymkentmai» JSC (vegetable oil production), «Azala Textile» LLP (light industry) [65].

Currently, there are 20 regions in the Republic of Kazakhstan, of which 17 are regions and 3 are cities of republican significance.

By Decree of the President of the Republic of Kazakhstan «On some issues of administrative-territorial structure of the Republic of Kazakhstan» No. 887 dated May

3, 2022, the administrative center of Almaty region was moved from Taldykorgan to Konaev, and also formed: 1) Abay region with the administrative center in Semey by separating from composition of East Kazakhstan region; 2) Zhetisu region with the administrative center in Taldykorgan by separating it from Almaty region; 3) Ulytau region with the administrative center in Zhezkazgan by separating it from Karaganda region.

Different starting positions, natural and climatic conditions, resource potential, human capital, and historically established specializations largely determine the unevenness and disproportions in the development of the regions of Kazakhstan.

1.2 Project approach in regional development management: essence, principles and methodology

In his Address, the President of the Republic of Kazakhstan, K.K. Tokayev, identified the main ways and specific directions of reforms for conducting the political and economic modernization of Kazakhstan: «This is macroeconomic stability, economic diversification, digitalization, development of small and medium-sized businesses, human capital, ensuring the rule of law» [66]. Quality and inclusive growth in the welfare of the population remains the primary focus of the country's state policy.

Today, considering the need for modernization of economic processes, regional policy is undergoing a number of changes, related to the limited resource base on the one hand, and the lack of additional opportunities due to insufficient coverage of the market environment on the other hand. The effectiveness of regional policy largely depends on the approaches and management methods employed by government, central and local executive bodies.

The project approach, a promising management model that meets modern challenges, is dynamically developing in industry and fields, in particular manufacturing, IT, trade, construction, tourism, consulting, financial services, education, public administration, etc. There has been a significant increase in successfully implemented projects in many areas of government activity and business community.

For a comprehensive understanding and widespread application of project approach in regional management, it is necessary to correctly define what the concepts of «project approach» and «project management methodology» mean.

The term «project approach» is most often used as a set of principles and guidelines that define how a specific project is managed [67].

The notion «project management methodology» was first defined in the early 1960s. Project management methodology is a rigorous combination of logically related policies, practices, processes, tools, methods and models that determine how best to plan, execute, control and implement a project. Project Management Institute defines project management methodology as a system of practices, methods, procedures and rules used by those who work in a discipline [68]. The existing definitions are shown in Table 4.

Table 4 – Project management methodology definitions

Year	Definition	Author
1989	Set of tools, methods and practices used in software development	Humphrey
1996	A structured way to manage projects consisting of rules and directions and is based on specific way of thinking	Brinkkemper
1997	Set of techniques and tools used for solving specific problem	Introna and Whitley
1999	Framework for improving inter-organizational communication and avoiding duplication of work, based on developed documentation, common resources and training	Clarke
2000	Structured approach to project delivery consisting of set of processes and activities, with each process or activity having clearly defined schedule and resources	Turner
2001	Set of knowledge about tasks, methods, techniques, supplies, deliveries, roles and tools	Gane
2003	Any principle project management team relies on in order to successfully deliver project result	Cockburn
2003	Set of guidelines and principles that can be tailored and applied to specific situation, where guidelines could be as simple as task list, or it could be specific approach to project with defined tools and techniques	Charvat
2004	Theoretical framework that describes each task in depth, so that a project manager or team will know what to do in order to implement activities of project according to the budget, schedule, specifications and other requirements	Kerzner
2009	Set of guidelines that support project manager and team through controlled, managed and visible set of activities in order to achieve project results	Office of Government Commerce
2013	Model that describes all of the project management activities and documentation	Ericsson
2014	Set of methods, techniques, procedures, rules, templates, and best practices used on a project	Spundak
2019	Governance tool that defines the roles, responsibilities, process, milestones, and control points in the project. Management tool that provides guidance in the planning and implementation of the project.	Muller et al.
2020	Organization's process for managing the full life cycle of projects	McGrath, & Whitty
2021	Standard practices, terminology and processes to ensure smooth project progress	Najdawi & Shaheen
Remark – compiled by author from sources [69-83]		

Based on the wide range of definitions, we propose the following description of project management methodology: Project management methodology is the doctrine on organization of activity that includes:

- rules, principles, values, common terminology;
- roles, responsibilities;
- guidelines, standards, documentation;

– processes, procedures;
– methods, tools, techniques, templates;
– tasks, activities;
– milestones, deliveries;
– best practices.

It is important to highlight the goals and benefits of a project management methodology. Introduction of new team members to the process, flexible replacement of team members, clear responsibilities, customer experience, visible progress and status reporting, and education are several methodology goals. Characteristics of a good methodology are required level of details, usage of templates, standardized planning, time management and cost control techniques, standardized reporting, flexibility for application across all projects, flexibility for quick development and understandability for user.

Project management methodology benefits projects and organizations, regional structures and departments in terms of monitoring and control, standardization, common language, guidance and support. However, the results indicate a misalignment between the intended benefit of project management methodologies at the strategic level and the benefits reported by project managers at the project level.

The first formal project management methodologies were created more than forty years ago by government agencies to control budgets, plans, and quality. Three types of project management methodologies are revealed in the literature: standardized, customized and combined project management methodologies. The main question that causes controversy among researchers and practitioners is whether standardization with little project environmental context; customization with context; or mixed with some context can result in project success.

Two main project management approaches are discussed in the studies: traditional (predictive, waterfall) and agile (adaptive). Furthermore, the absence of consensus on which one is better and preferable lead to the emergence of relatively new hybrid project management approach that combined both approaches.

The traditional or classical project management approach was developed in the 1950s for projects that follow a set plan. This period is characterized by stable economic conditions and the absence of a dynamically changing environment caused by rapidly developing technologies. The aim of the traditional approach is to follow the plan within the project triangle (time, cost and scope).

Almost all knowledge bodies of project management institutes are based on traditional approach. The reason for this dominance is due to the development of the first versions of bodies of knowledge in the 1980s, when there existed no alternative approaches. Subsequent editions of knowledge bodies reflect changes in actual practices, but do not always meet the expectations of practitioners.

The traditional approach is based on five sequential steps: initiation, planning, execution, monitoring and control, and closing (Figure 2). The groups are broken down into 49 project management processes and allocated to ten knowledge areas: integration, scope, schedule, cost, quality, resource, communication, risk, procurement and stakeholder management.

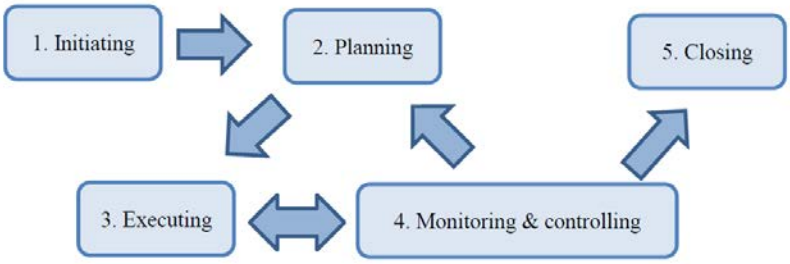


Figure 2 – Five Project Management Process Groups

Remark – source [68]

In engineering and software development, this approach is often called the waterfall model, which is illustrated in Figure 3 and consists of several tasks in a linear sequence.

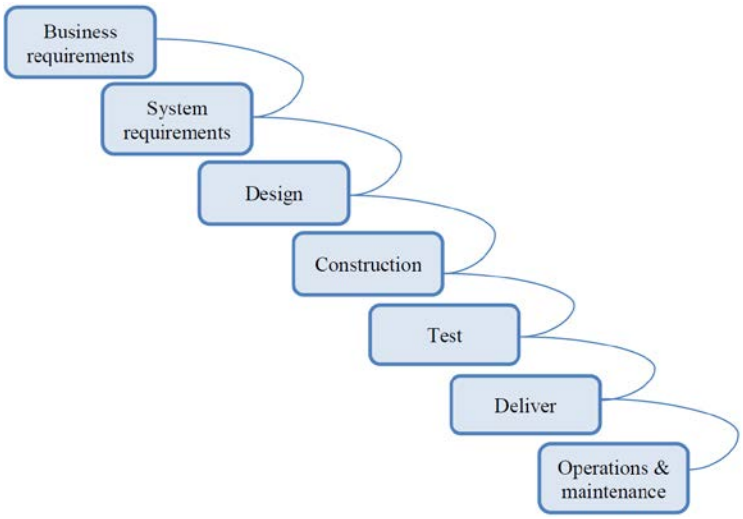


Figure 3 – Project life cycle model

Remark – source [84]

The classical approach implies that the time, cost and scope of project are determined in the early phases of life cycle, and any changes to project are strictly managed and controlled. The traditional approach requires significant effort in process documentation, especially in case of change requests. This approach is resistant to change and focuses on compliance to plan as a measurement of success.

The waterfall approach can be adapted to any project environment because basic principles, processes, procedures and techniques can be applied to every project uniformly. The approach should be robust and applicable to a wide range of projects, from simple and small to complex and large ones [85]. However, a growing number of authors are of the opinion that «one size does not fit all» [86,87]. One of the most critical tasks is to select the right and appropriate approach, methodology for a

particular project within the frames of cost, quality, time and scope. Conversely, an error in this choice could result in high project risks.

Application of traditional approach did not always respond to changing conditions and nature of projects. According to many researchers, projects have changed and become more complicated with an increasing number of stakeholders, tasks and complex relationships that the traditional project management approach is not able to deal with. Essential reasons for the limited application of traditional approach to a wide range of modern projects are structural complexity, a high degree of uncertainty in goals and objectives, and project time constraints. To support this point of view, several authors note high fallibility of projects and their management as one of the key disadvantage of traditional project management approach. There is a necessity for new ways to solve the problems of modern economic and business environment.

The major weaknesses of traditional project management approach, identified by both academics and practitioners, created openings for an alternative agile approach to project management.

The concept «agile» emerged in the manufacturing field in 1991 and was developed by a group of researchers from Iacocca Institute of Lehigh University (USA). They defined agility as a «manufacturing system with capabilities (hardware and software technologies, human resources, educated management, information) to meet rapidly changing market needs (speed, flexibility, customers, competitors, suppliers, infrastructure, responsiveness)» [88].

The concept of agile project management dates back to 1980s compared to traditional project management, which basic principles were developed in the 1950s and emerged from defense and construction industries. Contrary to the agile manufacturing and agile software development, few works dedicated to agile project management in other industries. Until 2009, agile project management approach was prevailing in IT projects. Therefore, most of studies were concentrated on software development projects.

Confronto et al. offer the definition of agile project management as follows: «an approach is based on a set of principles, whose goal is to render the process of project management simpler, more flexible and iterative in order to achieve better performance (cost, time and quality), with less management effort and higher levels of innovation and added value for customer» [89].

The agile approach is oriented on projects with a high degree of uncertainty, unpredictability, adaptability, constant changes and updates, faster execution and active client participation and involvement. Principles of agility: speed, innovation, proactivity, quality, profitability, reduction in delivery times, adaptation of people, processes and product, reliable results.

The Agile community has established four core values:individuals, software, customer and change (Figure 4). Despite the recognized importance of items on the right, agile project management approach is more focused on the items on the left.

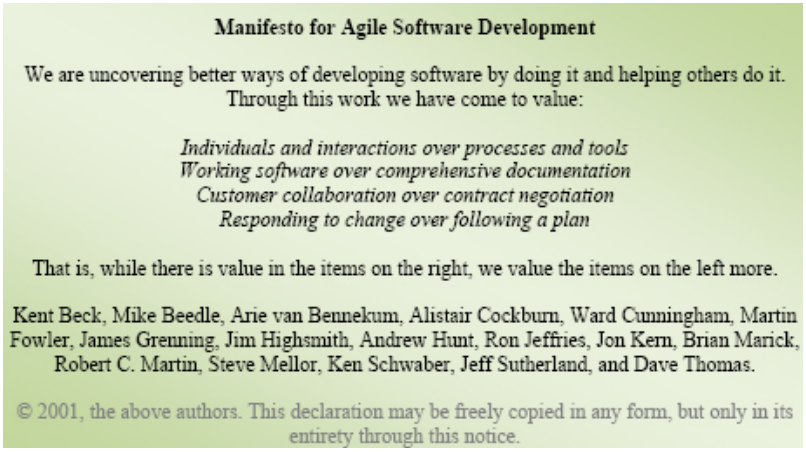


Figure 4 – Agile Manifesto

Remark – source [90]

Even though, Manifesto was developed for agile software projects, all the core values can be introduced and applied to different projects that use agile project management

Agile project management is an iterative and incremental process which implies that stakeholders and project team members cooperate closely to identify requirements and set priorities in the considered field. The agile approach contains lots of rapid iterative planning and development cycles, enabling checking and assessment of interim results and making corrections by users, clients and stakeholders in case of change in their preferences. (Figure 5). This approach opens up the opportunity for fast modifications of product when previously unclear goals and requirements are revealed.

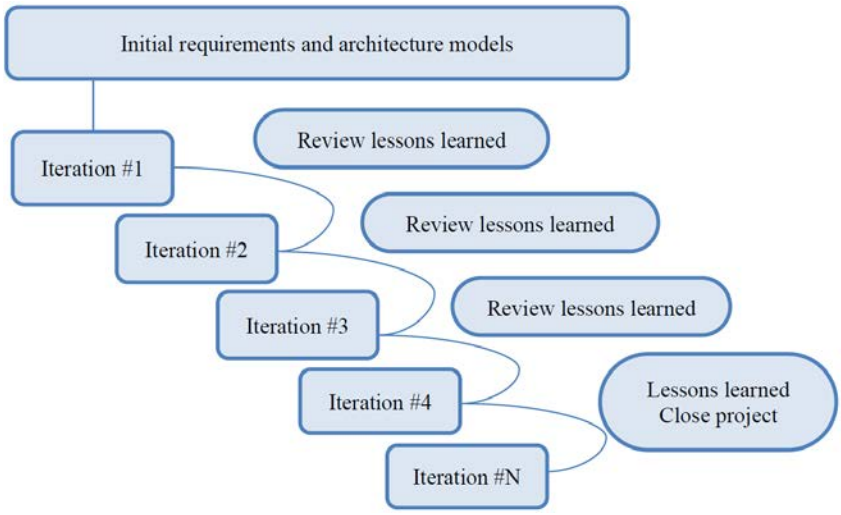


Figure 5 – The agile project lifecycle model

Remark – source [84]

As the traditional project management approach that includes four phases of project life cycle, the agile approach also has several phases of project.

For a comparative analysis of two different approaches, separate authors have developed a project life cycle in an agile approach to project management. Thus, Highsmith divides the project life cycle on following phases: Envision (define vision, project scope and project organization), Speculate (develop model defined by the product characteristics and time constraints, and iteration plan for vision implementation), Explore (deliver tested parts in short time and continuously search for a way to reduce project risk and uncertainty), Adapt (check deliverables, current situation, and team behavior to adapt if necessary), and Close (close project, create lessons learned, and celebrate) [91]. Similarly, De Carlo establishes Flexible Project Model that contains five iterative phases: Visionate, Speculate, Innovate, and Reevaluate, and closing phase Disseminate [92]. In addition, each short iteration consists of all phases and final project scope is constructed by every iteration. Project scope could be changed up to 30 % during each iteration.

Referring to Chin, the contemporary environment, which is characterized by changing at accelerating rate conditions, the agile approach offers exclusive solutions and project outcomes [93]. Chow & Cao (2008) states that critical success factors for the agile approach embrace appropriate application of agile methods, highly qualified project team, and right delivery strategy, while appropriate management process, organizational environment, and customer involvement are factors that might contribute to project success [94].

The traditional and agile approaches have their advantages and disadvantages. According to survey results from 3234 project management practitioners, conducted by Project Management Institute, most organizations still use waterfall (traditional) approach – 37%, the rest percentage, wherein for each approach (other approaches, agile and hybrid) falls on around 20 % of application [95]. The survey results are displayed in Figure 6.

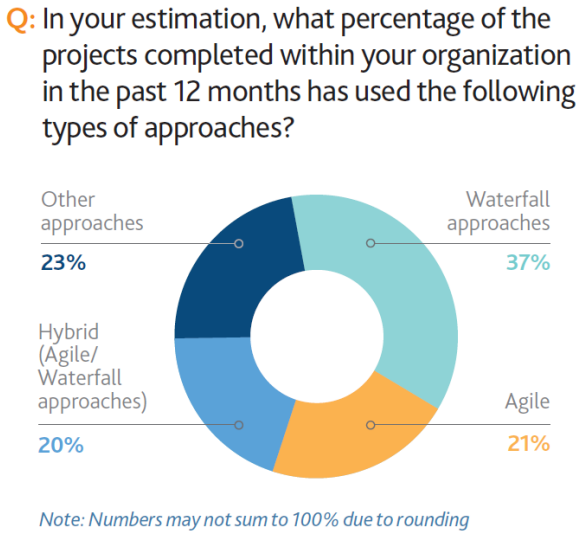


Figure 6 – Analysis of using different types of project approaches

Remark – source [95]

Depending on project characteristics and features, an appropriate approach to project management should be applied. The organization's type of industry, strategy,

goals, policy, rules, procedures and business processes play an important role in defining the suitable project approach. Since traditional (waterfall) project management approach is a time-proved approach, and there is also empirical evidence on successful results of application of traditional project management methods and practices, this approach is more widely adopted across various industries and has gained broader acceptance in diverse sectors.

Regarding benefits and drawbacks of both approaches, the type of organization and specifics of project, as well as their characteristics, are crucial elements in choosing what project management approach to employ.

As already mentioned, the traditional approach is more acceptable for projects with well-defined goals, tasks, objectives, where the plan can be developed at the outset of the project, there is low level of changes during the project, and therefore low level of uncertainty.

In construction, engineering, and defense projects, changes in requirements are typically low, and there is no need for active customer involvement or interaction between project teams and clients. The traditional approach is more adequate for large projects.

The agile project management approach is more suitable for projects (e.g., manufacturing, IT, research projects, software development, new innovative product development, process modification projects) that have volatility of requirements, high level of uncertainty, unpredictable activities and changes, technological and organizational complexity and ambiguity (unknown cause and effect interdependencies). Furthermore, since non-linear, iterative and incremental process of agile approach includes constant updates and additions, the human factor is considering as the most significant aspect in the collaboration process. Therefore, several authors in their recommendations state that highly skilled workforce, communication, collocations of project team members are critical success factors.

Table 5 – Comparative analysis of project approaches

Characteristic	**Traditional approach**	**Agile approach**
Requirements	clear initial requirements; low change rate	creativity; innovation; unclear requirements
Users	low engagement and involvement	close and frequent cooperation, collaboration
Documentation	formal documentation required	tacit knowledge
Project size	larger, bigger projects	smaller projects
Organizational support	established business processes and documented information and procedures	readiness for change and adoption of agile approach
Team members	there is no emphasis or focus on project team; not accentuated; expected fluctuation; distributed team	collocated team; smaller team
System criticality	serious system failure consequences	less critical systems
Project plan	linear	complex; iterative
Remark – Compiled by author		

Taking into account the existing statements of several researchers, we present the main advantages and disadvantages of each approach (traditional and agile) in Table 6 and 7 respectively.

Table 6 – Traditional approach

Advantages	**Disadvantages**
Stable working system	Top-down approach
Well-structured process	Leadership style is command, control and hierarchical
Optimization of processes and procedures	Very structured
Time-proved methods, tools and techniques	Huge amount of documentation and records
Importance of initial requirements	Bureaucracy and formalization
	Change-resistant
Remark – Compiled by author	

Table 7– Agile approach

Advantages	**Disadvantages**
Low hierarchy	Insufficient amount of empirical evidence on successful application of agile methods and practices
Speed, flexibility	Risks that can impact on product/service quality
Fast-learning by applying tacit knowledge	
Intense customer involvement	
Informal communication	
Joint decision-making	
Remark – Compiled by author	

1.3 International experience of project management in regions and its adaptation to the conditions of Kazakhstan

To determine the role of project management in Kazakhstan's regional development policy, it is necessary to consider the stages of its formation through the lens of international development.

The history of project management begins with the definition of management as an independent scientific field of study and is still being written. Regardless of how the science of project management develops, a need to use various effective tools, methods and digital means for achieving strategic development goals remains unchanged.

The first cases of project management application date back to ancient times. The construction of the pyramids, Roman Aqueducts and Great Wall of China are such examples.

The formation as a theory that impacts project management practice occurred in the first half of the XX century.

The following tendencies facilitate the separation of project management as an autonomous field of knowledge:

– increased attention and need for methods of realizing successful engineering projects;

– implementation of large-scale government projects that require concentration in assessing finances and preparing management decisions when resources are limited and risks are uncertain;

– colonial policy projects contributed to the accumulation of economic, technical and social know-how;

– elaborations of new technologies, innovative products and services.

In the book «An Introduction to the History of Project Management: From Ancient Times to 1900 AD» Y. K. Chiu names Henri Fayol and Henry Gantt as the founders of project management [96]. Despite the disagreement of some authors, many confirm that engineers have made a significant contribution to the development of this field of management.

Henri Fayol, a French engineer, was the head of a major metallurgical company that played a decisive role in rearmament of French army before the First World War. Being interested in management problems, through observation, the manager identified five management functions, such as planning, organizing, commanding, coordinating and controlling, and also identified 14 principles for an effective performance of management functions. The theoretical ideas of the French engineer have been criticized more than once. Nevertheless, these concepts have withstood the test of time and remain the fundamental elements and objectives of management that are still in effect today.

Henry Gantt was an American engineer who later worked as a consultant. The engineer's most famous development is the Gantt chart, widely used in projects of all sizes. Henry Gantt invented a new tool in project management between 1910 and 1915, that have been used on major projects during World War I and the construction of the most famous dam in the United States, the Hoover Dam.

The modern era of project management begins with the invention of critical path method and PERT technique. During the 1950s, the size and complexity of most projects grew to such an extent that existing management methods were no longer adequate to meet modern requirements. Repeatedly, large-scale projects in building aircraft, missiles, communications systems and naval vessels incurred enormous costs and were characterized by significant schedule overruns. To solve the problems, two new methods for planning and controlling projects were developed. Two new methods come from two different areas: the naval and chemical industries. In 1958, the US Navy led Project Polaris, the first submarine-launched ballistic missiles (SLBMs) with nuclear warheads. During the project realization, one of the most widespread methods PERT was developed by the Program Evaluation Division of the US Naval Special Projects Office, with the assistance of Lockheed Missile Systems and the consulting firm Booz-Allen & Hamilton. The high degree of uncertainty and complexity associated with the project created preconditions for implementation of PERT method, which made it possible to visualize various project planning scenarios. The critical path method was invented almost simultaneously by M.R. Walker from Du Pont de Nemours and J.E. Kelly from Remington Rand during the realization of chemical plant construction project in 1957. The creation of method was facilitated by the need to

estimate cost and time of project. The method originally developed was called Project Planning and Scheduling (PPS), but later this method evolved into the famous CPM method. Subsequently, the US Government mandated the use of CPM method in projects of the Department of Defense, NASA, as well as in large projects of nuclear power plants construction.

In the 50s and 60s, almost all projects in the aerospace and defense industries used project management methods. Suppliers were also involved in active use of PM techniques and tools. However, the growth rate of project management field remained low and relatively slow.

The opening of professional organizations in the 1960s, Project Management Institute in the USA and International Project Management Association in Europe, played a key role in the history of formation and development of project management.

Project Management Institute was founded in 1969 by five volunteers. Initially, the goals of creating the organization were to exchange experience and provide consultation on project problems. PMI was created in the interests of project management professionals. Currently, the organization unites project managers from all over the world and have representative offices in 217 countries. The list of services includes the development of standards, training, certification, accreditation, conducting research, conferences, seminars and networking. Despite the diversity and at the same time different interpretations of project industries and areas, the common tasks and goals of project community prevail over the differences between sectors.

International Project Management Association was founded in 1965 in Zurich (Switzerland). Initially, the organization was called INTERNET (INTERnational NETwork), also IMSA (International Management Systems Association). The association was later renamed IPMA in 1996. Today, the association consists of about 70 member associations, which function with the goal of disseminating and improving competencies in global project management.

The 70s are characterized by significant technological breakthroughs and this significantly affects project management field. The creation of PCs, mini-computers, elaboration of Internet communication first prototype APRANET, the founding of large companies Microsoft, Oracle, Artemis, Scitor Corporation and others describe the achievements of that time. In project management, PROMPT computer project management method has been developed, which is subsequently transformed into PRINCE2.

In the 1980s, there was a formalization and standardization of project management. In 1987, based on a 1983 document entitled «Ethics, Standards, and Accreditation Committee Final Report» the first Guide to the Project Management Body of Knowledge, PMBoK, was published. This work is becoming a global standard for many industries.

Over time, with holding of international conferences, the release of manuals, standards, scientific journals, introduction of professional certification, the institutionalization of project management is being formed.

In the 90s, in parallel with the PRINCE2 standard, methods for managing programs and portfolios were elaborated. In 1997, Eliyahu M. Goldratt introduces critical chain method for planning and managing projects. This method is based on the

theory of constraints and, unlike the critical path method and PERT, the main focus is on the required resources to complete a project, rather than on a task.

Since the 2000s, a number of significant innovations have taken place in project management with the development and advancement of information, communication and digital technologies, which include the introduction of accessible systems to support project activities, the creation of SaaS Project Management (software as a service) (cloud data storage Google Drive, Dropbox, Yandex.Disk), BIM (from 3D to 7D modeling), widespread use of artificial intelligence, etc. Meanwhile, approaches and tools of project management are being transformed and changed, adapting to modern turbulent realities (Table 8).

Table 8 – International experience

Year	Basic results and achievements
1910-1920s	Publication of Frederick Taylor's work «Principle of scientific management». Henri Fayol's book «General and Industrial Management». Henry Gantt developed the Gantt Chart.
1930-1950s	A matrix organization for projects' realization was applied. The critical path method (CPM), PERT network planning system, and Monte Carlo method have been elaborated. A systematic approach to project (program) management by life cycle stages is proposed. The publication of the article «The project manager» by Paul O. Gaddis in Harvard Business Review magazine.
1960s	Professional project management organizations have been created: in Europe – International Project Management Association (IPMA) in the USA – Project Management Institute (PMI). Methods of graphical evaluation and analysis (GERT - Graphical Evaluation and Review Technique) have been elaborated. Based on Toyota Production System, a model for lean production methodology, MRP (Material requirements planning) has been introduced by IBM engineer Joseph Orlicky.
1970-s	The PROMPT computer projects' management method has been elaborated, which became the prototype of PRINCE2. Earned Value Method (EVM) to track project costs and progress has been introduced.
1980-s	The emergence of a special scientific discipline – Project Management. The first Guide to the project management body of knowledge has been developed. PMP certification exam has been introduced for the first time. First publication of scientific journal «International Journal of Project Management» (IPMA, APM).
1990-s	PRINCE2 standard has been developed – a universal method of project management in the UK public administration system. Critical Chain, Earned Schedule and portfolio management tools have been invented and implemented. Publication of the first edition of scientific journal «Project Management Journal» (PMI).
2000-p.t.	Development of project management tools and techniques based on information and combinatorial technologies. Available support systems of project activities have been introduced. SaaS Project Management software (software as a service) has been elaborated (cloud data storage Google Drive, Dropbox, Yandex. Disk). Application of agile approach in project management, that is based on Agile Manifesto principles. ISO 21500:2012 Guidance on Project Management has been published.
Remark – compiled by author from sources [96,97]	

The adoption and spread of PM models, tools, methods and best practices has significantly intensified over the past 40 years and these changes will have continuation, especially in the field of global project management. If 20 years ago companies faced the choice of using PM approaches, now the main question lies in correct implementation and speed of introducing project management into the work of organizations. Figure 7 shows the typical life cycle phases that an organization goes through when implementing project management.

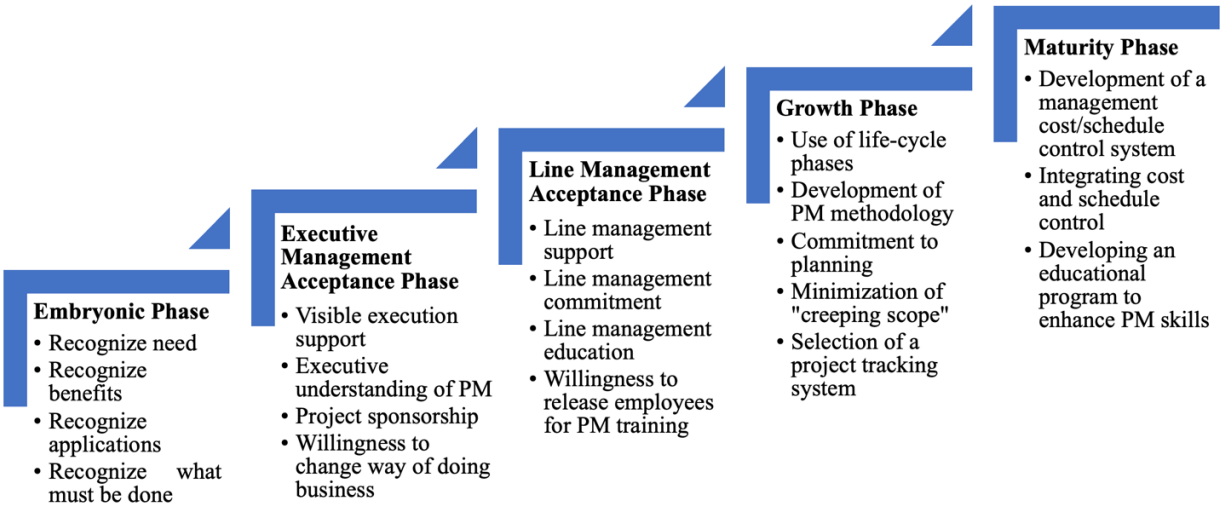


Figure 7 – Life-cycle phases for project management maturity

Remark – source [98]

Considering project management as a developing area of academic research that can make a valuable contribution to the body of management knowledge, it is important to note that evolutionary processes have led to the formation of at least nine schools of project management.

The historical processes of project management are structured according to the stages of management thought development, highlighting certain schools that follow one another and complement each other with new substantive aspects of understanding project management.

The nine project management schools include the following: optimization, modelling, governance, behaviour, success, decision, process, contingency, and marketing (Figure 8).

School of Project Management	Meaning of project	Field of Management Study	Key idea	Sub-schools	Came to prominence	Key variable or unit of analysis
Optimization School	Project as a *machine*	Operations Research	Optimize project duration by mathematical processes		Late 1940s	Time
Modelling School	Project as a *mirror*	Management Science	Use of hard and soft-systems theory to model the project	Hard systems Soft systems	1950s Mid 1990s	Time, cost, performance, quality, risk, etc.
Governance School	Project as a *legal entity*	Governance	Govern the project and the relationship between project participants	Contracts Temporary organization Project-based organization	1970s Mid 1990s Late 1990s	The project, its participants and governance mechanisms
Behaviour School	Project as a *social system*	OB and HRM	Manage the relationships between people on the project	OB HRM	Mid 1970s Early 2000s	People and teams working on projects
Process School	Project as an *algorithm*	Operations Management	Find an appropriate path to the desired outcome		Late 1980s	The project, its processes and sub-processes
Contingency School	Project as a *chameleon*	Contingency Theory	Categorize the project type to select appropriate systems		Early 1990s	Factors that differentiate projects
Success School	Project as a *business objective*	Strategy Management	Define success and failure Identify causes		Mid 1980s	Success criteria and success factors
Decision School	Project as a *computer*	Information Management	Information processing through the project life cycle	Project selection Information processing	Late 1980s Late 1980s	Information on which decisions are made
Marketing School	Project as a *billboard*	Marketing	Communicate with all stakeholders to obtain their support	Stakeholders Internal marketing Value of project management	Mid 1990s Mid 1990 Mid 2000s	Stakeholders and their commitment to the project and project management

Figure 8 – Project Management Schools

Remark – source [99]

Optimization School interprets a project as a machine or system where the goal, objectives are clearly defined, careful planning, timing and schedules are provided to achieve optimal results, taking into account cost and time efficiency. The Taylorian approach of school implies a predictable course and outcome of project based on mathematical calculations and analyses.

Modelling School presents a project as a mirror that reflects the invested resources and is influenced by various external and internal factors. Expanding from optimizing one or two constraints (time, cost) to modeling the entire project management system and interaction between its elements. Thus, optimization school, based on a rigid systems approach, is transformed into modeling school, in which project management is broken down into its main components for deep study and understanding, and these elements are combined for obtaining a complete view of the system as a whole. This is similar to Descartes' reductionist approach, where a complex problem is broken down into parts, each part is solved, and then combined to solve the whole problem. Research in this area continues to integrate the hard and soft systems methodologies to model the entire project management system, including optimizing multiple objectives under multiple constraints and taking into account various forces in project's internal and external environment, also formulating and adopting lessons

learned from projects to improve the entire system and approaches used for its modeling.

Governance School studies the project as a legal entity and as a temporary organization. The project is viewed through two perspectives: first explores a relationship between procurement (contract) management and project management, second examines the mechanisms of project management and a project-oriented institution. In terms of contracts, the subschool presents the project from one of two positions:

- as an independent legal entity, where there are rules for managing relations between the parties;
- as an intermediary between two legal entities (client and customer) and explains how the interaction should be carried out and managed.

Project management covers three important areas: 1) the principal-agency relationship between client and contractor; 2) transaction costs associated with projects and 3) mechanisms of projects' governance.

The first area examines the causes and consequences of certain behavior of the contractor, as well as the decisions he makes (the adverse selection problem, the moral hazard problem), which in some cases run counter to interests of customer.

The second area involves a study of transaction costs and agency costs primarily in construction industry projects. Contract management mechanisms, roles, responsibilities, areas of responsibility, contract strategies, organization of strategic alliances are objects of analysis to achieve quality project results.

The third area of focus for project management is the management mechanisms of parent project-oriented organization. Due to the large gap between project operations and regulatory authorities, a project governance model is proposed to institutionalize ethical responsibility in companies.

Behaviour School, at its core, contains a vision of the project as a temporary organization of a social system, which consists of directions and areas that shed light on organizational behavior, team building, leadership, communications, and human resource management. Recent studies are devoted to issues of conflict management, management of virtual, cross-functional teams, knowledge management, etc.

Success School studies the successes and failures of projects. Research focuses on two main components of success:

- Project success factors (independent variables);
- Project success criteria (dependent variables).

Project success factors include conditions, characteristics and those elements of project environment that, if properly managed, can affect the likelihood of successful implementation of the project. Examples of factors embrace concepts such as management support, personnel, leadership style of top management and project manager, proper planning and control, risk management, communications, project mission, stakeholders, access to technology, team experience and other.

Project success criteria are indicators that allow evaluating the effectiveness of project and the achievement of company's business goals. Traditional criteria for project success are time, cost and quality. Later, the criteria are supplemented with

following components: achievement of the organization's strategic goals, customer satisfaction, stakeholder satisfaction, etc.

Possible options of factors and criteria for project success, as well as their relationship, are presented in Figure 9.

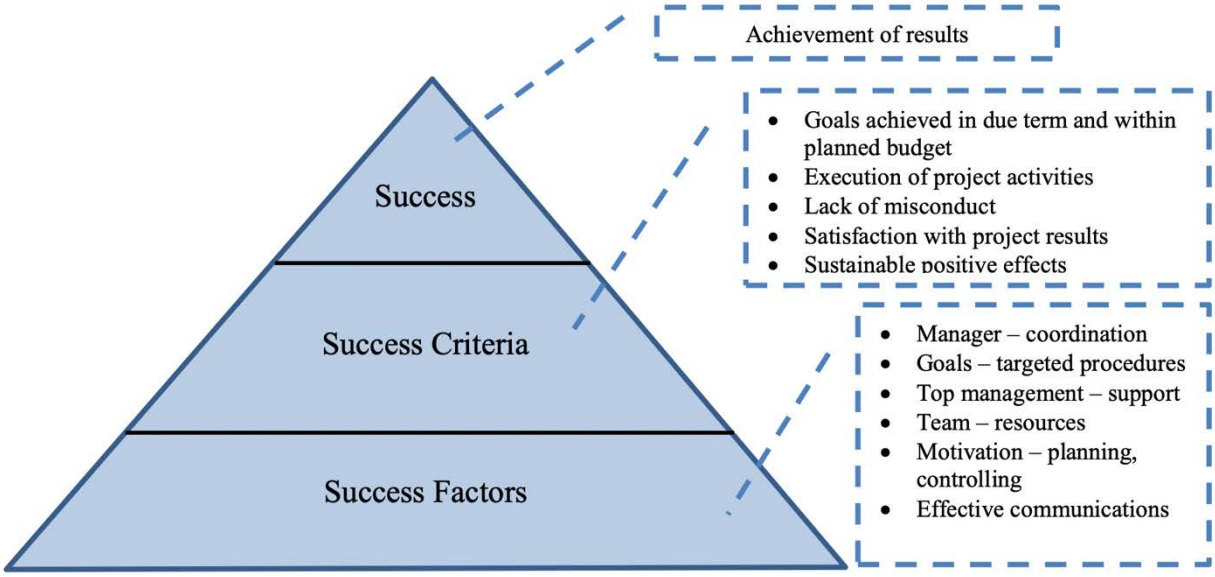


Figure 9 – Conceptual model of project success components

Remark – source [100]

Decision School presents the project as a computer. Issues related to the factors of initiation, approval, financing, selection, completion and termination of projects are explored. The approach describes how economic, political, and cultural rules dictate and determine decisions made regarding investments and resources. Two central areas are highlighted in the approach: the decision-making process at different stages of project and the transfer and processing of information in the project.

Process School interprets the project as an algorithm. The approach became popular in the late 80s in Europe. The project is presented as a structured process, an algorithm by which a vision and future desired state becomes reality. By following the developed algorithm (project implementation), the organization will achieve the desired result. Many developments formed the basis of the Guide to the PMBOK body of knowledge: processes for managing content, quality, deadlines, risks, project life cycle, integration management, etc.

Contingency School views the project as a chameleon. Different types, kinds, specifics and industries of projects and organizations require radically different approaches. Each project is unique and this dictates the use of different competencies and leadership styles to achieve effective results. Categorization of projects is also included in the scope of study of school with the aim of: 1) selecting the right projects that correspond to organization's strategy and prioritizing them for resource allocation; 2) correct implementation of projects, in particular an appointment of the right personnel with the appropriate competencies and their training.

Marketing School presents the project as a billboard. The object of study is the needs and desires of clients, consumers, users and project stakeholder management. Internal marketing and sales of project consulting services to top management and governance are further considered in school's research.

The above schools are in one way or another connected with each other, and in some cases one school flows or intersects with another. Schools study project management from different angles, each making their own invaluable contribution to the development of this field of knowledge.

Knowledge of project management and its trends is a necessary and mandatory factor for successful implementation of projects. To improve efficiency and effectiveness in achieving the strategic goals and objectives of organizations, scholars and practitioners have developed a number of project management standards and methodologies. This area is in continuous development. Up-to-date information, experience, best practice and benchmarking are presented in project management bodies of knowledge published by respected and professional bodies and standards institutes. There are several international associations dedicated to promoting project management and developing standards and guidelines for companies, among the most successful are IPMA and PMI.

Founded in 1965 by the Federation of Professional National Associations, IPMA is the first and oldest project management organization. The initiator is a famous project manager from Dormer (Germany), Roland Gooch, who convenes a group of project management experts from Europe and the USA in Paris. In 1967, the I World Congress on PM was held in Vienna, which brought together about 400 specialists from around the world. After an organization was renamed in 1995, the number of participants grew to 20 thousand people in 70 countries.

PMI, founded in 1969 by five volunteers (James Snyder, Eric Jenett, Gordon Davis, E.A. «Ned» Engman and Susan C. Gallagher), holds its first workshop in Atlanta with 83 participants. In 1970, the first issue of Project Management Quarterly (PMQ), later renamed Project Management Journal (PMJ), was published. The first PMI chapter abroad is registered. Strong growth leads to opening of PMI Publishing Center in North Carolina. Today, PMI is the leading professional association for project managers and has more than 680 thousand members in 217 countries.

Professional organizations create and update project management standards and guidelines on a regular basis.

According to PMI definition, «a standard is a document established by consensus and approved by a recognized body that provides, for general and repeated use, rules, requirements, guidelines, or characteristics of activities or results aimed at achieving an optimal degree of consistency in a given area».

Project management standards are divided into following 3 types:

1) Standards used and applied in relation to the object of management, regulating processes of objects' management PMBOK, PRINCE2, ISO 21500:2012, P2M, GOST R 54869-2011, C-PMBOK, Body of Knowledge of APM;

2) Standards used and applied in relation to the subject of management, establishing requirements for competencies and knowledge of specialists and the process of assessing their qualifications (ICB - IPMA Competence Baseline, A

Framework for Performance Based Competency Standards for Global level 1 and 2 Project Managers, PMCDF , The APM Competence Framework);

3) Standards for assessing the maturity of company's management system (IPMA Delta, OPM3, P3M3, PMMM, PM Maturity).

We shall examine the main widely known standards for project management and their peculiarities.

ICB IPMA is a standard that identifies and describes the competency requirements for professionals in project, program and portfolio management. In the latest version of ICB4, 29 competencies are distributed across 3 areas: perspective (5 elements), people (10 elements) and practice (14 elements) (Figure 10).

Perspective refers to the environment in which project professionals operate and includes following key indicators: 1) strategy; 2) leadership, structures and processes; 3) compliance, standards and regulations; 4) power and interests; 5) culture and values.

The People competency area contains a description of personal qualities and abilities to interact with other people. Basic personal qualities include self-awareness and self-organization, personal integrity and reliability, interpersonal communications, relationships and involvement, leadership, organization of teamwork, conflicts and crises, creativity, negotiations, result orientation.

The scope of practice denotes the general methods and means and contains following elements: overall project plan (concept), requirements and objectives, content, timing, organization and information, quality, finance, resources, procurement, planning and control, risks and opportunities, stakeholders sides, changes and transformations, selection and balancing.

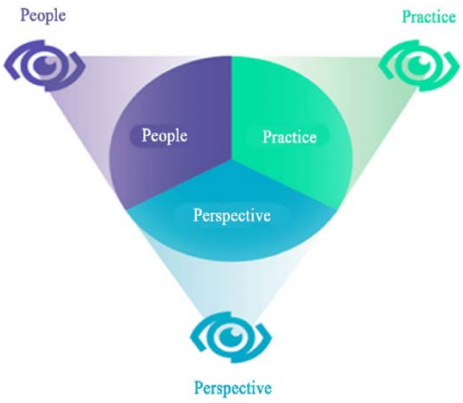


Figure 10 – Eye of Competence

Remark – source [101]

The value of standard lies in its practical application for a wide range of people, in particular teachers, trainers, consultants, scientists, managers, HR specialists and various assessors. The standard can serve as a basis for creating a competency model for graduates and project management specialists, developing and improving educational programs, advanced training courses and competency levels.

A Guide to the Project Management Body of Knowledge, PMBOK was first released in 1987 as a white paper. In 1996, the document was recognized by the American National Standards Institute (ANSI) as a national standard in the United States. The third edition of standard has been translated into 11 languages and has sold more than 2 million copies worldwide. In 2006, in Business Week magazine, this standard took 4th place on the list of business bestsellers, moreover, the standard ranks 10th on www.amazon.com in sales among management and leadership books. The second edition of PMBOK has become an international standard for project management, recognized by the world community. The standard is updated every 4 years.

The latest 7th version of PMBOK was published in 2021. This version differs from the previous 6th edition in its view of project components and project management system. PMBOK7 focuses on principles rather than processes as it was in earlier editions (Figure 11).

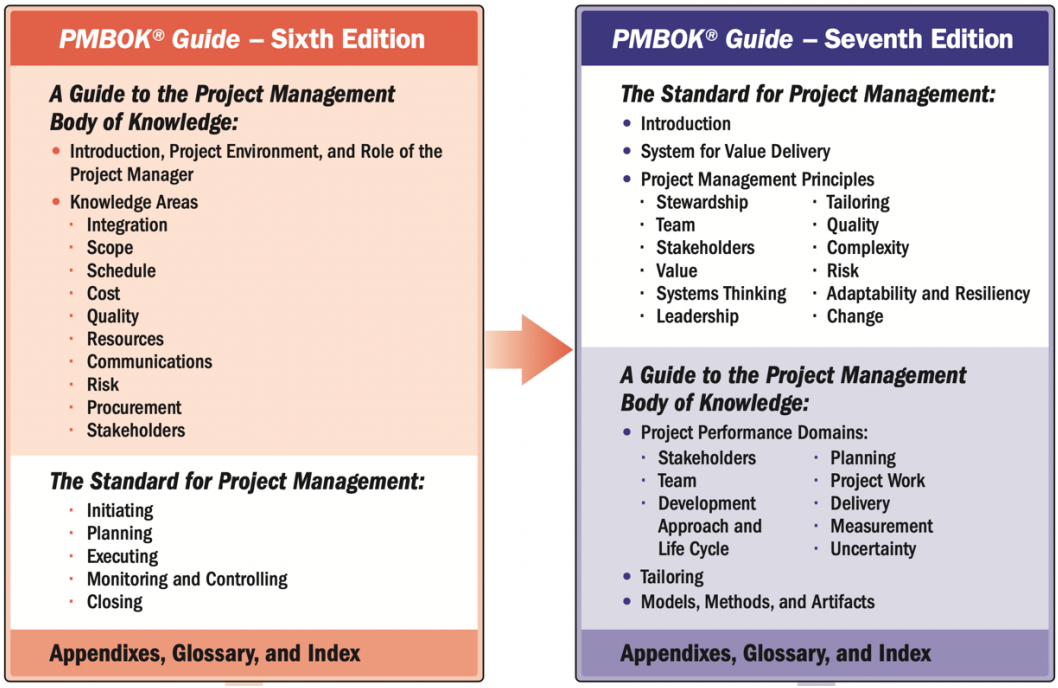


Figure 11 – Standard revision and transition from 6 to 7 version

Remark – source [102]

The transition from a process-based to a principle-oriented approach was influenced by following two significant factors: 1) focus on a client and benefits for him; 2) a variety of approaches, models on elaboration, creation of products and implementation of projects.

The complexity and imperfection of process approach lay in excessive detail and specificity, which made it impossible to apply to all areas due to its abstractness and impracticality.

The 8 domains in PMBOK 7 are valid and possible steps that can be performed without regard to sequence. These include stakeholders, team, development approach

and life cycle, planning, project work, delivery, measurement, uncertainty. Herewith, it is necessary to take into account and be based on 12 principles: stewardship, team, stakeholders, value, systems thinking, leadership, tailoring, quality, complexity, risk, adaptability and resiliency, change.

The standard provides a clear and concise description of each domain, operations in the domain, methods and artifacts (about 200 pieces) used in the domains, results and verification/evaluation of results. It is possible for domain realizations to intersect with each other, and there is a relationship between domain elements. The section on adapting domains to practices of different unique companies in different unique projects is explained in more detail in this standard.

PMBOK 7 has noticeably expanded the possibilities in terms of practical application in literally all types of modern projects, focusing on creating value from project for an organization, which lies not in the product, but in obtaining advantageous effects from its use after project closing.

PRINCE2 is based on PROMPTII (Project Resource Organization Management Planning Techniques) methodology developed by Simpact Systems Ltd. in 1975. Later in 1979, the standard, adapted by Central Computer and Telecommunications Agency (CCTA), became mandatory for use in the UK government IT project management.

The first version of PRINCE2 guide was published in 1996, the latest in 2017. The standard describes 3 related elements: principles, themes and processes. At the same time, there are 7 elements in each. Thus, 7 principles include following: Continued business justification, Learn from experience, Defined roles and responsibilities, Manage by stages, Manage by exception, Focus on products, Tailor to suit the project environment. 7 topics: Business Case, Organization, Quality, Plans, Risk, Change and Progress. 7 basic processes are installed: Starting up a Project (SU), Directing a Project (DP), Initiating a Project (IP), Controlling a Stage (CS), Managing Product Delivery (MP), Managing a Stage Boundary (SB), Closing a Project (CP). There are also 41 sub-processes.

The advantage of standard is in its focus on the economic justification of project before its start, assessment of feasibility, comparison of effects and benefits with costs, risks and project time. This can provide a greater guarantee for successful implementation of project and generation of benefits and effects from the project.

Another distinctive peculiarity of PRINCE2 is the presence of clear list of responsibilities for 9 roles in project team, which are described in detail in an entire chapter. The roles include following: project board (executive, senior user, senior supplier), project assurance, project assistant, project manager, team manager, project support, change of authority. If the PMBOK mainly focuses on principles and methods for project manager, then in PRINCE2 the project team, individual roles and responsibilities occupy one of the central areas.

In addition, processes in PRINCE2 cover 4 levels of management: corporate or programme management, direction (project board), management (project level) and delivery (team level) (Figure 12).

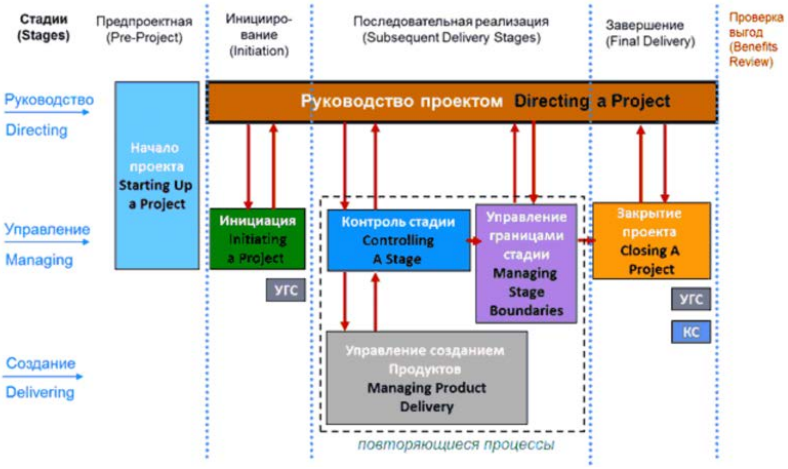


Figure 12 – The PRINCE2 Process Model diagram

Remark – source [103]

An additional benefit of guide is the identification of 26 management products. These include reports, registers, plans, journals, etc. Important information contained in management products is necessary for making decisions in the project. The creation, updating, verification or approval of such management products is entrusted to the responsible persons in a timely manner with deadlines.

The PRINCE2 model is applicable to a wide range of projects of different sizes, types and fields. Thus, today, having gained great popularity, the standard is becoming a sought-after complex methodology for many European organizations in public and private sectors, as well as in countries of South Africa, Australia, New Zealand and the USA (including for IT projects of oil corporations).

ISO 21500 is an international universal standard. It was first published by TC 236 – Project Committee: Project Management in 2012. The standard combines best practices from the Project Management Institute PMI (USA), the International Project Management Association IPMA and the British Standards Institute BSI. It is noteworthy that national standards in Kazakhstan and Russia were based on ISO 21500:2012.

Officially, ISO 21500:2012 has been canceled and replaced by two standards: ISO 21500:2021 (Project, program and portfolio management - Context and concepts) and ISO 21502:2020 (Project, program and portfolio management - Guidance on project management). An example of project management in the context of program and portfolio governance and management is presented in Figure 13.

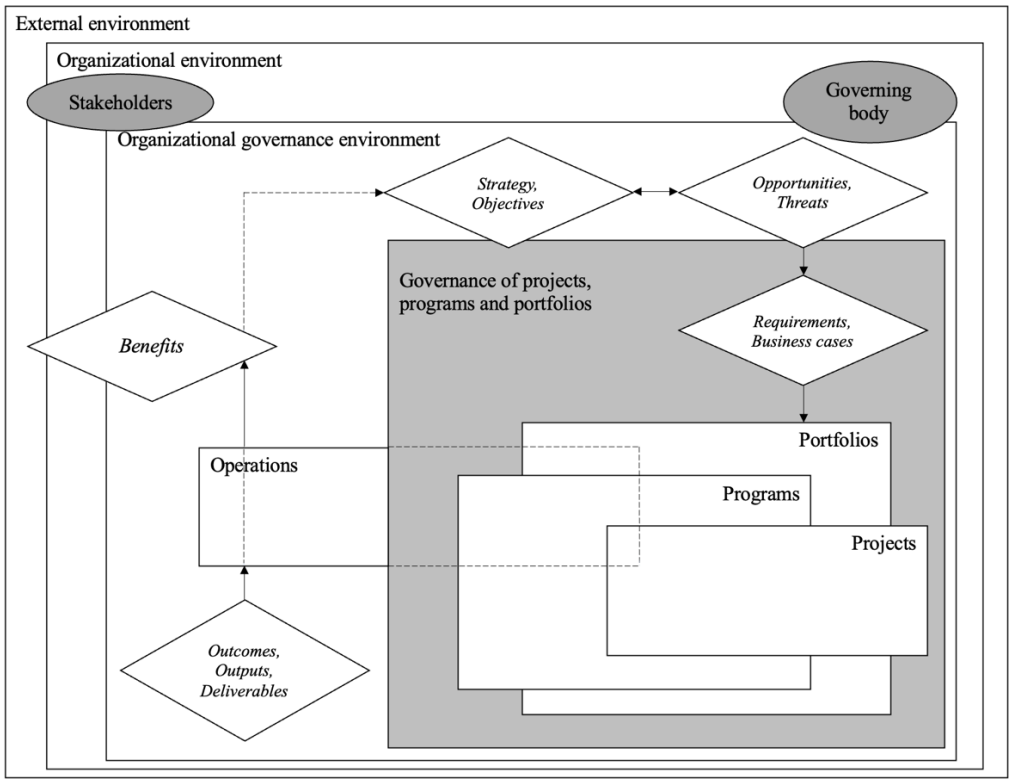


Figure 13 – Example of the context of the governance and management of projects, programmes and portfolios ISO 21502:2020

Remark – source [104]

The updated version of ISO 21502:2020 standard has undergone several critical transformations. The format of manual has changed from process-oriented to practice-oriented, the concept of project management has been complemented with inclusion of high-level of projects' oversight and management of activities of sponsoring organization. Roles and responsibilities in project have been significantly expanded. Themes such as creating a project environment, project life cycles, decision points and gates, project methods, in particular benefit management and change control have been updated and added. Pre- and post-project activities have been completed.

The standard describes 6 project management concepts, prerequisites for formalizing project management, 8 integrated project management practices, 17 management practices for a project.

The 6 concepts of project management contain: an overview of the concepts of project and project management, the context in which project is implemented, project governance, project life cycle, project organization and roles, competencies of project personnel.

The 8 integrated PM practices include: pre-project activities, overseeing, directing, initiating, controlling, managing delivery, closing or terminating a project, post-project activities.

The 17 management practices for a project contain: planning, benefit, scope, resources, schedule, cost, risk, issues, quality, stakeholder, communication,

procurement, information and documentation management, organizational and societal change, change control, reporting, lessons learned.

ISO 21500 is intended for a wide range of people, which encompasses top management, executive and senior management, project managers, auditors, project committees, standard developers, the academic community, etc.

Summarizing the considered international experience in applying project management in practice and theory, it should be noted that project management originates from the philosophy of management and at the present stage its development has led to transformation of PM into a business process. An increasing number of companies and organizations today consider it mandatory the implementation of project management imperative as a tool for survival and enhancing competitiveness in the unpredictable conditions of a changing world.

The project approach in public administration of the Republic of Kazakhstan was mainly used in the implementation of government programs. The introduction of project management methods and tools into government agencies has become the main results of the development of management science.

The official start for mastering the project approach and introducing project management in the Republic of Kazakhstan is considered to be an idea raised in May 1993 at the First Congress of Engineers of Kazakhstan by the First President of the Republic of Kazakhstan: «I would like to draw your attention to one important aspect of modern engineering education and activity... that aspect of the organization of engineering work, which is called «project management» or «project governance». Its peculiarity and advantage are that it focuses on continuous monitoring and engineering support of the entire investment cycle from finding an idea to making a profit» [105].

Later, in the strategy «Kazakhstan-2030. Prosperity, security and improvement of welfare of all Kazakhstanis» it was said: «Strategic planning, financial programming and project management should become the essence of updates in public administration of the near future» [106].

Over a 30-year period, global trends have led to the fact that practice of managing projects, programs and portfolios has become recognized and widespread both in private sector and government agencies of Kazakhstan.

At the initial stage, activities to promote project management in Kazakhstan were the responsibility of non-governmental organizations. Since 2003, the Union of Project Managers of the Republic of Kazakhstan and the Kazakhstan Project Management Association have been operating in the republic. A significant role in the popularization and spread of this direction was played by the Association of UPM of the Republic of Kazakhstan under the leadership of Doctor of Technical Sciences, Professor A.F. Tsekhovoy.

As a global representative (Global REP PMI) of the Project Management Institute (PMI USA) and one of the centers of competence in project management, UPM RK was the initiator of an introduction into postgraduate education system of preparation programs of Masters of Economic Sciences and PhD in the EP «Project Management». From 2008 to the present day, educational programs have been implemented in seven universities in Kazakhstan (two national and five leading private).

In 2010, the importance of project management reached the state level. On behalf of the Ministry of Industry and Technology and the Institute of Economic Research, a working group was created to elaborate the Concept for development of National Project Management System.

In 2012, the concepts of «project management» and «project approach» acquired dynamic development in Kazakhstan within the context of achieving the goals of republic in joining the 30 world economically developed countries, which were set out in «Kazakhstan-2050» Strategy. This strategic document indicates that economic policy of new course is economic pragmatism based on the concept of profitability, return on investment, increasing competitiveness and sustainability [107]. This, in accordance with the basics of project management, implies making all decisions from the point of view of economic and financial feasibility, long-term prospects and interests of the country.

The next important stage in the development of project approach was the creation of a domestic regulatory framework for project management.

In 2014, the first national standard in the field of project management ST RK ISO 21500-2014 Project Management Guide was approved.

The next stage in development of project management in the country was an introduction of project management into government bodies.

In 2016, the first Project Office under a government agency began its operating in the country. The Prosecutor General's Office of the Republic of Kazakhstan acted as a pioneer of innovation in public administration.

The Office for Monitoring the Realization of National Projects contributed to the development of project management in government agencies. Having passed a practical test and successfully implemented a number of projects in law enforcement system, the experience of Project Office of the Prosecutor General's Office of the Republic of Kazakhstan was transferred to other executive bodies.

Currently, project offices are open in ministries and departments, as well as in all regions of the country under local executive authorities. The unified ecosystem of project management consists of 44 project offices of government agencies and the Office for Monitoring the Realization of National Projects, the staff of which is formed from the staff of government agencies and interested organizations [108].

In 2020, President K.K. Tokayev, in his Address to the People «Kazakhstan in New Reality: Time for Action», emphasized the importance of changing the format of state programs and reorienting to flexible national projects that are accessible and understandable to citizens. In addition, it is necessary to make an accent on achieving a specific result, that is, on predominance of result over the process [109].

In 2021, in order to improve public administration and regulate project activities, a number of regulatory and legal documents were developed and approved, in accordance with which project management is carried out in government agencies. The basis of project management in state bodies are Statutes on the Office for monitoring the realization of national projects, approved by Decree of the Prime Minister of the Republic of Kazakhstan No. 37r dated February 23, 2021, Rules for the implementation of project management, approved by Decree of the Government of the Republic of Kazakhstan No. 358 dated May 31, 2021, and Type reglament for project management

in government bodies, approved by order of the Ministry of National Economy of the Republic of Kazakhstan No. 57 dated June 8, 2021. These regulations were developed taking into account international standards for project management in government agencies that are PRINCE2 (Great Britain), PMI PMBOK Government extension (USA), IPMA Individual Competence Baseline (IPMA ICB) and GPM P5TM.

In the same year, President of the Republic of Kazakhstan K.K. Tokayev approved a list of 10 national projects, the implementation of which is aimed at increasing the level of quality and efficiency of public administration through the use of project approach and project management methods in the implementation of state programs and national projects.

Crucial moments and important dates in the history of project management development in the Republic of Kazakhstan are reflected in Table 9.

Table 9 – The History of Project Management in the Republic of Kazakhstan

Years	**Important results and achievements**
1930-1990	The emergence of calendar and network planning, responsibility matrix, etc.
1997 год	Strategic goals and objectives have been set: «Strategic planning, financial programming and project management should become the essence of updates in public administration in the near future...». Message from the First President of the Republic of Kazakhstan «Kazakhstan-2030» Prosperity, security and improved welfare of all Kazakhstanis
2002-2003	First Symposium – «Project Management: Kazakhstan – 2002» Kazakhstan Association of Project Management (KAUP) and the Union of Project Managers of Kazakhstan (SPM RK) have been created
2008	The specialty «Project Management» has been opened for the master's degree at K.I. Satbayev Kazakh National Technical University (pr. Satbayev University)
2010-2011	The Concept of National Project Management System has been developed The Center for Project Management Development was created under the Kazakhstan Institute of Industrial Development
2013	The Academy of Public Administration under the President of the Republic of Kazakhstan introduced courses «Project Management» and «Management of Government Investment Projects»
2014	National standard ST RK ISO 21500-2014 – Project management guidelines is adopted
2015	I International Congress of Project Managers
2016	ST RK ISO 21500:2014 (Project Management Guidelines), the first National Standard of the Republic of Kazakhstan in the field of project management, came into force. Project Management Office has been created in the Prosecutor General's Office
2017	Executive Office of the President has created an Office of managing the Program of the Modernization of Public Consciousness «Regulation for project management in the government of the Republic of Kazakhstan» has been adopted The Prime Minister of the Republic of Kazakhstan at the opening of AEF announced the introduction of project management in the Government

Years	Important results and achievements
	A Center for Project Management Development in Public Administration has been created at the Academy of Public Administration under the President of the Republic of Kazakhstan
2018	The project approach was applied to government program; the Governing Council was created by the order of Prime Minister, (Government Program for Development of Agro-Industrial Complex of the Republic of Kazakhstan) The responsibility of political officials is personalized
2019	The project approach was applied to state program for the development of territory (Turkestan region)
2021	The elaboration and approval of regulatory and legal documents on project management in the Republic of Kazakhstan: Statutes on the Office for monitoring the realization of national projects, Rules for the implementation of project management, Type reglament for project management in government bodies. Approval of 10 national projects list of the Republic of Kazakhstan.
Remark – compiled by author from sources [103-113]	

It is worth noting that the introduction of project management in government agencies entails a fundamental change in the culture of government management.

Thanks to project management practices, the opportunities and prospects for improving competencies and skills of public officers in such areas as risk management, strategizing, systemic analysis of business processes, improving communications, and conducting business negotiations will be noticeably expanded. These knowledge and skills, as well as their correct application, will have a positive impact on the effectiveness of public administration at the center and locally.

As a result, only a professional government apparatus skillfully using project management tools will be able to solve the assigned tasks and achieve concrete results on the way to sustainable socio-economic development of the country.

2 ANALYSIS OF ECONOMIC DEVELOPMENT AND PROJECT MANAGEMENT STATES OF KAZAKHSTAN REGIONS

2.1 Impact of regional inequality on economic growth of Kazakhstan

Recent decades have been characterized by significant growth in GDP per capita in developing countries and a decrease in Gini coefficient of inequality by 20% [113]. However, the problem of inequality between countries, regions and individual territories remains one of the contemporaneity's global challenges. Moreover, modern economic science is increasingly focusing on the problem of inequality, and awarding of the Nobel Prize in 2015 to Angus Deaton, in 2019 to Abhijit Banerjee, Esther Duflo and Michael Kremer confirms this tendency.

In the current conditions of the development of the world economic system, spatial asymmetry and regional inequality in Kazakhstan are the main barriers to sustainable economic growth. According to the Bureau of National Statistics of the Republic of Kazakhstan, the gap between the rich and the poor has continued to widen for more than ten consecutive years. The difference between the maximum (Atyrau region) and minimum (Turkestan region) real income per capita is 3.8 times (in Atyrau region - 212,571 tenge, in Turkestan - 52,650 tenge), in the average monthly real wage per employee - 2,8 times. At the same time, the GRP per capita of Atyrau region is 14.5 times higher than that of Turkestan region.

In the Decree of the First President of the Republic of Kazakhstan dated February 15, 2018 No. 636 «On approval of the Strategic Development Plan of the Republic of Kazakhstan until 2025» a task of achieving annual growth rates of national economy of at least 4.5-5% GDP is defined [115]. The primary tool for achieving this indicator is an effective regional policy, which implies the modernization of Kazakhstan's regional systems through the managed urbanization.

Analysis of leading countries' territorial development allows concluding that urbanization is an important institutional factor in the rise of national economy for Kazakhstan as well. The share of urban population in the top thirty countries by HDI is 80% or more. The average rate of OECD countries is 77%. Regarding the countries that possess similar characteristics to Kazakhstan, in particular, a large territory with a small population, a high GDP level or developing countries, similar tendencies are observed here Thus, the level of urbanization in Australia is 90%, Argentina – 87%, Canada – 82%, Brazil – 75% [116].

According to the results of studies conducted by the World Bank, UNDP and OECD, attracting high-level specialists and talented youth to big cities with a decent living standard are drivers of states' economic growth. As stated in the 2019 Kazakhstan human development report «Urbanization as an Accelerator of Inclusive and Sustainable Development» few countries reached the required indicators: income of 10000 dollars and a share of urban population of 60%. Additionally, it is noted in the report that urbanization is a necessary but not sufficient condition for economic development.

Solving the above problems and tasks in this direction has become one of the priorities of Kazakhstan's national policy. First of all, this is due to fears of further strengthening of country's regional inequality, stratification of society and, as a consequence, increasing social tension and political instability. So, Nobel Prize laureate John Stiglitz notes that «... all over the world there is growing concern caused by increasing inequality and limited opportunity. These related tendencies affect the economy, politics and social processes» [117].

The research in this work aims to contribute to the question of examining the inequality-growth nexus. Future strategic policies should take into account a significant relationship between the variables of inequality and growth.

Today, issues related to regional development, as well as addressing regional disparity, are of particular interest to scholars focused on the challenges of regional policy modernization.

The conceptual foundations of regional economy development are laid in the fundamental works of A. Smith, D. Ricardo, J.H. von Thünen, A. Weber, A. Lösch, D. North, R. Solow and others.

The greatest contribution to the formation and development of regional economics' theory in Russia was made by such regionalist – scientists as N.N. Nekrasov (1906), A.G. Granberg (1936), R.I. Shniper (1922), A.V. Kuznetsov and O.V. Kuznetsova (1978), and others.

Separate theoretical and methodological problems of managing regional development in the Republic of Kazakhstan are reflected in the works of Kazakhstani scientists E.A. Turkebayev, S.B. Bayzakov, O.S. Sabden, B.D. Khusainov, S. Kunitsa, N.K. Nurlanova , N.Zh.Brimbetova and others.

Concerning the scholarship dedicated to the study of the relationship between inequality and economic results, it is worth noting the work of such prominent economists as Simon Kuznets and Thomas Piketty.

In 1955, Nobel Prize winner S. Kuznets published his outstanding work, in which, based on structural changes in the economy, he determined the relationship between income inequality and the development process. According to his findings, the long-term reversal in the dynamics of income inequality should be considered within the framework of a broader process of economic growth and in close connection with similar changes in other parameters [118]. Also in the early stages of development, inequality has a neutral effect, that is, it acts neither as a driving force nor as a restraining factor or deterrent.

In the scope of the assumption proposed by Kuznets, economic growth is first accompanied by an increase in income inequality, and then leads to its decrease. This is described by an inverse or inverted U-shape, the curve obtained during his study. For a long time, this hypothesis and statements have been accepted as a statistical fact, and the inverted U-shaped curve linking income inequality and economic growth served as an orienting point for the work of many economists. For example, in the work of a group of researchers concerning the forecast of the evolution of global inequality until 2030, the authors apply Kuznets' theory to population migration from agricultural to industrial sector and, as a result, the increase in inequality in the early stages of industrialization and its decrease in later stages [119].

Although Kuznets's hypothesis has been supported by some theoretical and statistical studies based on empirical data from developed and developing countries, it has been repeatedly subject of criticism by separate scholars. The main critic is the well-known economist Thomas Piketty, who improved the Kuznets's model in his book Capital in the 21st Century. Thus, the central variable in Piketty's work is capital (wealth and assets: land, real estate, equipment, intellectual property, etc.). Remarkably, inequality in capital income is stronger than inequality in labor income and plays a key role in shaping income inequality, and also has a significant impact on the overall level of household income.

The analysis of previous studies indicates the mechanisms of both positive and negative effects of inequality on economic growth. Moreover, the empirical literature does not come to unambiguous confirmations and findings. So, Panizza using cross-state panel data of income distribution of the United States provided evidence on some negative effects of inequality on growth [120]. Berg found a correlation between lower net inequality and faster and more durable growth [121]. Romero considered the inequality within the cross-industry and cross-country context [122]. With the emerging datasets, models, and developed specifications, the authors attempted to analyze how inequality and growth are connected and what factors are important [123].

High levels of inequality conduce to reduced economic growth rates in the following situations:

1. Increased inequality entails changes on the part of voters regarding the rise of tax rates on incomes of wealthier populations. Moreover, there might be a tightening of measures and a reduction in support for entrepreneurship. In aggregate, this leads to disincentives and discouragement for businesses to invest in new projects [124]. As a result of investment reduction, economic growth rates decrease, respectively. Under particular circumstances, inequality opens up a field of conflict, confrontation and social tension that has a negative effect on economic growth [125].

2. The simultaneous establishment of numerous industrial enterprises can be very profitable in the aggregate results, even if each individual entity does not yield a high profit [126]. The «Big Push» for industrialization is achieved through the coordination of government investment in different sectors. Various sectors of the economy adapt advanced technologies, thereby increasing profits, and these profits, in turn, become a resource for increasing demand for goods and services in other sectors [127]. This is how the market grows and develops, and industrialization leads to a rise in profits, and, accordingly, national income and well-being (decreasing inequality level).

3. The presence of imperfections in capital and financial markets and the absence of opportunity for investment in education. Because of financial markets' inaccessibility and limited budgetary resources, low-income families are not able to invest in education, considering education is a waste of time and non-receipt of benefits in the short term [128]. By providing the population with high-quality education, the state invests in economic growth for a long-term perspective, since the labor productivity of a skilled worker will be higher than that of an unskilled worker. A rise in labor productivity will lead to an increase in profits, income, wages and,

consequently, taxes to the budget. Thus, investment in human capital will provide the basis for accelerating economic growth.

Higher inequality has a positive impact on economic growth in the following cases:

1. The propensity to save and accumulate capital among rich citizens is higher than among the poor [129]. It follows that income inequality is rising, more wealth is in the hands of wealthy individuals, and the amount of savings in the economy as a whole is becoming greater. Since savings are the main source of investment, the larger they are, the more significant the rate of economic growth.

2. High levels of inequality stimulate risk taking, higher investment in education, and increased productivity [130]. Because educated workers are more efficient and earn higher incomes, this facilitates investments in education and professional development of a larger number of individuals.

This research work aims to analyze the effect of inequality and income on economic growth at the level of regions of Kazakhstan. Based on the data from 1995 to 2020, this study will analyze the impact of inequality on economic growth (GRP), which is expressed by variables such as the interregional inequality index, the country inequality index, real incomes, and the Gini market index. For this purpose, assumptions were made that there is a positive relationship between the selected indicators. Thus, two main hypotheses are put forward in this study:

H_0: There is no relationship between indicators of inequality, income, and economic growth (GRP).

H_a: There is a significant relationship between inequality, income, and economic growth (GRP) indicators.

Methodology. The methodology of this study is based on the development of the concept of income inequality presented in the work of Cignano [131]. The development of concept is expressed in assessing the impact of inequality and income on the dynamics of economic growth. The novelty of research lies in the fact that evaluation of the effect of interregional, country inequality, and income on economic growth was carried out on the example of Kazakhstan for the first time. Studies with a similar assessment were not found among many analyzed domestic and foreign works.

The present study, assessing the inequality and income impact on Kazakhstan's economic growth dynamics, includes two stages. At the first stage, Gini indices G_1 and G_2 are calculated on the basis of GRP and GRP per capita, respectively. At the second stage, the calculated Gini indices G_1 and G_2 are included in the regression equation. The two stages of evaluation are described in more details below.

1. At the first stage, the Gini coefficients G_1 and G_2 are calculated. The essence of inequality concept consists in the following explanation. The concept of interregional inequality focuses on the heterogeneity between regions in Kazakhstan. The indicator of inequality is based on statistical data on inequality that was calculated using the gross regional product obtained from household surveys in all regions of Kazakhstan, without considering the proportion of the population. Regions are used as the unit of observation in the calculation. To determine interregional inequality, the Gini index (G_1) is calculated using the formula (1) [132]:

$$G_1 = \frac{1}{\mu_1}\frac{1}{n^2}\sum_{i=1}^{n}\sum_{j>1}^{n}(y_j - y_i) \quad (1)$$

where:

G_1 – interregional inequality index;
y_j , y_i – gross regional product (GRP);
j , i, n – number of regions;
μ_1 – average GRP.

In the concept of country inequality, the data on population size is additionally used, as opposed to interregional inequality. The Gini index (G_2) for determining country inequality is estimated using formula (2) [132]:

$$G_2 = \frac{1}{\mu}\sum_{i=1}^{n}\sum_{j>1}^{n}(y_j - y_i)p_i p_j \quad (2)$$

where:

G_2 – country inequality index;
y_j , y_i – gross regional product per capita (GRP per capita);
j , i, n – number of regions;
ρ_i , ρ_j – share of the population in regions j and i of Kazakhstan;
μ – average GRP per capita.

2. At the second stage, as in the most empirical studies of growth factors, the Solow growth model was exploited. The empirical equation for assessing economic growth is expressed as a linear function of real GRP per capita, inequality indices (country, interregional, market Gini indices), and real incomes. The regression specification is as follows:

$$LnY_t - LnY_{t-s} = \alpha_1 lnG1_{t-s} + \alpha_2 lnG2_{t-s} + \alpha_3 Gini_{t-s}^{mark} + \alpha_4 lnRInc_{i,t-s} + \mu_{i,t} \quad (3)$$

where:

i – oblast (region);
($t - s$) – time period (time lag) in s years;
$Ln\ Y_{i,t}$ – log of real GRP per capita in region i in period ($t - s$);
$lnG1_{t-s}$ – log of interregional inequality index (unweighted by the population of regions) with lag s;
$lnG2_{t-s}$ – log of country inequality index (weighted by the population of regions) with lag s;
$lnGini_{t-s}^{mark}$ – log of Gini market index (before tax) in Kazakhstan;
$lnRInc_{i,t-s}$ – log of real incomes of the population in the i region with lag s;
$\mu_{i,t}$ – standard error.

Within the frames of analysis, the Generalized Method of Moments (GMM) is used instead of Least Square Dummy Variable estimators (OLS). The GMM takes into account variations in inequality between regions within the country over time. This estimation provides a solution to the computational problems that are possible because of the presence of a lag dependent variable the so-called «Nickell bias».

It should be noted that an approach based on GMM technique employs a set of internal instruments that are built on the previous observations of measured variables (inequality) with using multiple tests to the validity of these instruments. They have been successfully applied in modern empirical research on the relationship between inequality and growth.

Verifications contain Arellano-Bond test for autocorrelation of residuals (which invalidates the use of lag values of potentially endogenous variables in the form of measures of their first differences). In addition, the Hansen over-identification test, checking all instruments' joint consistency, was conducted.

The information basis of the research was the statistical data of Kazakhstan for 16 regions for 25 years from 1995 to 2020, available on the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. The initial data of GRP, GRP per capita, and the average annual population indicators serve as a basis for calculations performed. Data interpretation is presented in Table 10.

Table 10 – Description of variables

Variable/Indicator	**Explanation**	**Unit of measures**
GRP	Gross regional product	KZT
GRP per capita	Gross regional product per capita	KZT
G_1	Gini index (unweighted population)	KZT
G_2	Gini index (population-weighted)	KZT
RInc	Real income	KZT
Gini mark	Gini market	KZT
Remark – Compiled by author		

Results of the first stage. Two required coefficients were determined when performing calculations based on formulas (1) and (2), respectively. The estimates were made in the following order. The initial data on GRP for 16 regions of Kazakhstan were ranked in ascending order separately for each year. Further, the smaller value was subtracted from the more considerable GRP value of two adjacent regions. The computations were carried out by an iterative method every 25 years separately. The coefficient of country inequality was calculated according to a similar algorithm but taking into account the share of the population of each region in the total population for 16 regions of Kazakhstan.

Further, the dynamics of calculated indices (coefficients in percentages) of interregional and country inequality for the period 1995-2020 are provided in Figure 14.

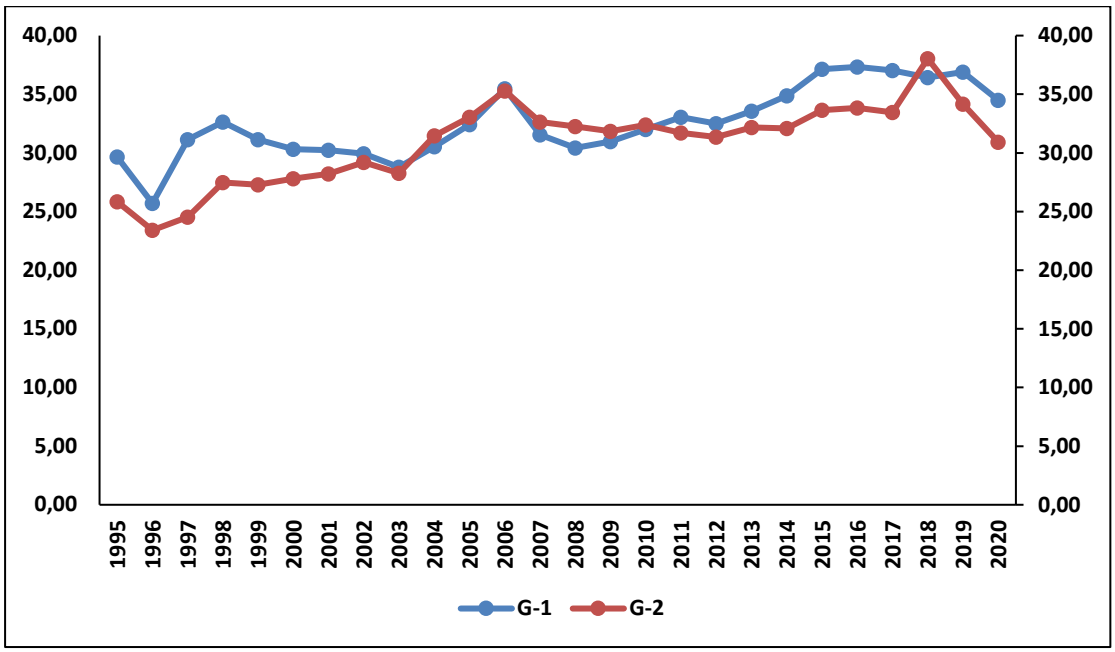


Figure 14 – Dynamics of interregional (G_1) and country inequality (G_2), in %

Remark – compiled by author based on analysis of calculations performed

According to the data presented for 1995–2020, it can be seen that the gap between interregional inequality and country inequality is not significant. At the same time, the average indicators of both types of inequalities in the range of 24-29% fell in the period 1996-2003. In turn, in 2006, the effect of convergence of the two indicators was observed. Further, the highest rates of interregional and country inequality were identified for 2015-2019. This can be explained by the economic consequences that occurred in Kazakhstan due to the devaluation of the national currency and the fall in energy prices. Both indicators showed downward trends from 2019 to 2020. It should be noted that absolute country inequality (G_2) during 1995-2006 mainly increased, then it is characterized by a downward trend until 2012. In subsequent years, there has been an increase in country inequality with a sharp rise of indicator in 2018 (38.04%) and an indicator decrease to 30.91% in 2020. Thus, it can be concluded that indicators G_1 and G_2 showed changes and fluctuations of a leaping nature.

If we consider the dynamics of average nominal incomes per capita over the past 20 years, these indicators demonstrate deepening inequality between the regions of Kazakhstan. For the analyzed period by years and data presented, as of 2020, the highest indicators are shown by Atyrau (215,076 KZT), Nur-Sultan (174,396 KZT), Almaty (164,721 KZT), Mangistau (141,506 KZT), Karaganda (130 552 KZT) and Pavlodar (119 334 KZT). This can be explained by the presence of high incomes in Nur-Sultan and the financial center Almaty, as well as in regions with oil and gas and metallurgical industries. Also, this is related to the increase in prices on energy carriers and metal products, which creates favorable conditions for developing regions with a high share of the fuel industry and metallurgy working for export.

Average indicators have been found in the western (Aktobe 98 360 KZT, West Kazakhstan 112 319 KZT), northern (North Kazakhstan 103 292 KZT, Kostanay 105 856 KZT, Akmola 107 224 KZT), and eastern (East Kazakhstan 111 632 KZT) regions

of Kazakhstan. Low rates are in the southern areas, where incomes do not exceed 100,000 KZT: Turkestan (63,443 KZT), Shymkent (75,725 KZT), Zhambyl (80,516 KZT), Kyzylorda (85,142 KZT), Almaty region (86,606 KZT). The relatively low level of industrial development, the emphasis on agricultural sectors, combined with the rapidly growing population are causes of low rates in these regions.

Further, it is suggested to consider the indicators of average incomes of Kazakhstan population (Table 11).

Table 11 – Indicators of average nominal income per capita of Kazakhstan population

Regions	The average nominal income per capita of the population, KZT					
	2000	**2005**	**2010**	**2015**	**2020**	**2020/2000 ratio**
Akmola	4 817	11 443	31 169	56 579	107 224	22,3
Aktobe	6 916	16 982	36 356	60 921	98 360	14,2
Almaty	3 712	9 486	26 476	53 860	86 606	23,3
Atyrau	15 056	39 197	82 662	123 202	215 076	14,3
West Kazakhstan	6 555	17 873	43 556	64 317	112 319	17,1
Zhambyl	3 245	9 101	28 333	43 143	80 516	24,8
Karaganda	7 769	15 561	40 701	66 841	130 552	16,8
Kostanay	5 472	12 574	30 514	55 399	105 856	19,3
Kyzylorda	4 678	12 385	34 653	49 400	85 142	18,2
Mangystau	14 906	35 713	59 909	101 302	141 506	9,5
Turkestan	3 049	8 206	23 280	35 830	63 443	20,8
Pavlodar	7 481	15 326	38 396	66 488	119 334	16,0
North Kazakhstan	5 105	11 405	31 478	54 653	103 292	20,2
East Kazakhstan	7 418	12 793	33 101	55 392	111 632	9,4
Nur-Sultan city	11 936	32 738	67 172	128 956	174 396	15,3
Almaty city	11 382	29 347	67 190	111 530	164 721	14,5
Shymkent city	-	-	-	-	75 725	-
Highest Income / Lowest Income	**4,9**					**3,4**
Remark – compiled by author based on data from source [133]						

It should be noted that for the analysis of indicators of average nominal income per capita, data have been taken every five years from 2000 to 2020, the limitation of this study was the lack of data before 2000. According to the data provided, it can be

seen that in 16 regions of Kazakhstan, there is an almost 24-fold increase in nominal income per capita, with a rise in the average regional value of 17.3 times. The smallest growth is observed in Mangystau and East Kazakhstan regions (around 9.5 times). In this case, the convergence effect is confirmed, developing regions have higher economic growth rates than developed. It can be concluded that the gap between the maximum and minimum values in 2000 was 4.9 times, in 2020 - 3.4 times, which indicates a significant reduction in inequality and equalization of population incomes.

Results of the second stage. A factor analysis was performed at this study stage of research, and the Solow growth model was exploited. Based on formula (3), an assessment was made of the effect of selected factors on economic growth, in particular, the economic growth assessment equation is expressed as a linear function of real GRP per capita, inequality indices (country, interregional, market Gini indices) and real incomes. All data for calculating the level of impact of interregional, country inequality, and income were obtained using the STATA software package and then summarized in Table 12.

Table 12 – Results of regression analysis for regions with income data (lag 1) (*all models are consistent*)

Variable	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
L.lnGINI1	0.105	-0.00492	-0.0463	**0.399*** **	
	(0.108)	(0.147)	(0.0696)	(0.124)	
L.lnGINI2	**0.548** **	**0.515*** **	**0.909*** **		**0.610** **
	(0.216)	(0.158)	(0.216)		(0.212)
L.lnReal_Income	0.0613	**-0.191** **		0.0795	0.0673
	(0.0798)	(0.0709)		(0.0778)	(0.0745)
L.lngini_mkt	1.585		-1.689	**1.946** **	1.895*
	(1.424)		(1.534)	(0.805)	(0.979)
Constant	-7.936	-0.357	4.361	-8.615**	-9.014**
	(5.399)	(0.663)	(5.476)	(3.399)	(3.482)
Observations	287	287	287	287	287
Number of regions	16	16	16	16	16
Hansen test (p-value)	0.573	0.541	0.565	0.549	0.534
Arellano-Bond test for AR(2)b (p-value)	0.640	0.658	0.523	0.665	0.767

Notes: Dependent variable is GRP per capita, [t-(t-1)] is a 1-year period
All models are estimated by System GMM using a robust, two-step method
All regressions include country and period dummies
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1 indicate significance at the 1%, 5% and 10% level respectively
[a]The null hypothesis is that the over-identifying restrictions are valid
[b]The null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation

Remark – author's estimates from analyzed data

Model 1 represents the original specification, including all variables (interregional and country inequality indices, real income, pre-tax market Gini index). Models 2-5 are built by considering the exclusion of one of the predictors. For instance, model 2 does not contain the Gini market index (G_{mark}), model 3 does not contain real income RInc and so on. Empirical results show that inequality positively affects the growth of Kazakhstan's GRP per capita.

Model 2 confirms that there is a significant relationship between country inequality, real income and economic growth. The coefficient α_3 is negative and statistically significant, reflecting that with an increase in income by 1%, real GRP per capita will decrease by 0.2%. The coefficient α_2 is positive, statistically significant, and means that the growth of country inequality by 1 point will contribute to an increase in Kazakhstan's GRP by 0.5%.

Models 1, 3, and 5 demonstrate a significant positive impact of country inequality on economic growth. Model 4 is characterized by the positive effects of interregional and market inequality.

In order to confirm the nature of the inequality impact on economic growth, an additional study was conducted, where real incomes have been replaced by real wages of the Kazakhstan population. The results of the study are provided in Table 13.

Table 13 – Results of regression analysis for regions with wage data (lag 1) (*all models are consistent*)

Variable	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
L.lnGINI1	0.0820	0.0346	-0.0463	**0.348*** **	
	(0.0988)	(0.150)	(0.0696)	(0.0942)	
L.lnGINI2	**0.509** **	**0.537*** **	**0.909*** **		**0.526** **
	(0.230)	(0.160)	(0.216)		(0.186)
L.lnReal_Wage	**0.318***	-0.157		**0.345** **	**0.366*** **
	(0.158)	(0.123)		(0.141)	(0.120)
L.lngini_mkt	2.768*		-1.689	3.212***	3.105**
	(1.310)		(1.534)	(0.968)	(1.343)
Constant	-13.75**	-0.508	4.361	-14.84***	-15.10***
	(5.110)	(0.867)	(5.476)	(4.089)	(5.116)
Observations	287	287	287	287	287
Number of regions	16	16	16	16	16
Hansen test (p-value)	0.584	0.559	0.565	0.559	0.571
Arellano-Bond test for AR(2)b (p-value)	0.733	0.726	0.523	0.729	0.899

Notes: Dependent variable is GDP per capita, [t-(t-1)] is a 1-year period
All models are estimated by System GMM using a robust, two-step method
All regressions include country and period dummies
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1 indicate significance at the 1%, 5% and 10% level respectively
[a]The null hypothesis is that the over-identifying restrictions are valid
[b]The null hypothesis is that the errors in the first-difference regression exhibit no second-order serial correlation

Remark – author's estimates from analyzed data

Similar to the previously presented results (for regions with real incomes), model 1 contains an initial specification with the following variables: indices of interregional and country inequality, real wages, and Gini market index before tax. In models 2-5, one of the variables is excluded.

The results of data analysis show a positive relationship between country inequality and GRP per capita growth. In models 1,2,3 and 5 show a relationship between country inequality and economic development. While model 4 reveals the relationship between interregional inequality and GRP growth of Kazakhstan.

According to model 5, country inequality and real wages positively affect economic growth. The coefficient α_3 is positive and statistically significant, meaning that with a 1 % increase in wages, real GRP per capita will increase by 0.4%. The coefficient α_2 is positive, statistically significant, and reflects that an increase in country inequality by 1 point will be accompanied by an increase in GRP of Kazakhstan by 0.5%.

All obtained models are consistent and have (though not very high) significant explanatory power. In addition, the data in Tables 12 and 13 reflect the fixed effects for all five models. The applied robust estimates indicate the significance of included factors. All models confirm the relationship between inequality and Kazakhstan's economic growth. Thus, the alternative hypothesis is accepted and approved based on the study, and the null hypothesis is rejected.

Thus, the impact of inequality on economic growth is significant but depends on various factors. In addition, there are different views on the economic consequences of inequality in many works. Therefore, the purpose of this part of study is to assess the impact of inequality on the growth of Kazakhstan's economy. It was rightly noted that social unrest is a characteristic of developing countries since poverty in low-income countries is much more significant [134]. The results of analysis of the average nominal incomes per capita have shown that in developed regions, there is a relative reduction in inequality and equalization of incomes of the population, nevertheless in some regions, equalization measures are still required.

The factor analysis confirmed that the country and interregional inequality impact the economy of RK. There are positive and negative results of the inequality influence on economic growth. Some research works found the negative effect of inequality [135,136], other proved the existence of positive results depending on the level of a country's development [137,138], unequal income distribution due to the process of urbanization [139], the importance of characteristics of demographic indicators [140]. The range of observations by GMM showed a positive impact on the economic growth of an indicator, such as real wages. At the same time, for most of the sample, the estimated effect of inequality has a positive effect on the growth of Kazakhstan's GRP per capita.

Besides, in future research, the problem of inequality's impact on economic growth requires the study of additional parameters and inclusion of various factors in growth models. In particular, the econometric model should be supplemented with factors such as the population's level of education and qualifications, knowledge economy and health capital.

Based on a review of extant literature, it can be revealed that many works highlight the general conclusion about the negative and positive impact of the level of inequality on economic growth. In considered works, there are different views on the economic consequences of inequality. The number of determinants and factors of inequality is constantly growing. The objective of this study is to analyze the changes of inequality in Kazakhstan, expressed by Gini coefficients, to examine the dynamics of population incomes over the past 25 years, as well as to estimate the effect of inequality, both interregional and country, and income on the growth of country's economy.

It was found at the first stage that the gap between interregional inequality and country inequality is insignificant. In addition, the average indicators decreased in the period of 1996-2003, which is a characteristic of the state policy to stimulate economic growth. In 2015-2019 period, the highest numbers of interregional and country inequality were revealed. This can be explained by the economic consequences in Kazakhstan due to devaluation of national currency and fall in energy prices.

It was found at the second stage that there is relationship between inequality, income, and economic growth. It is noteworthy that in models with real incomes, the increase in income has a negative impact on the development of Kazakhstan's economy. With income growth of 1%, real GRP per capita will decrease by 0.2%. The growth of country inequality by 1 point will increase Kazakhstan's GRP by 0.5%. In models with real wages, the opposite effect is observed. In particular, the increase in real wages positively impacts the country's economic growth. With a 1% rise in wages, real GRP per capita will increase by 0.4%. All models demonstrated the positive link between inequality and economic growth. In general, the hypothesis of this study about the impact of inequality and income on the dynamics of economic growth in Kazakhstan is confirmed by empirical calculations.

In conclusion, regional development issues and the smoothing of regional inequality are of particular importance for regional policy and the organization of regional development management, especially regional project management. When considering regional policy, policymakers and those who evaluate the success of regional policy should be aware that conclusions may depend on timely taken measures. Therefore, future research can develop in two different, albeit interrelated, directions: firstly, a study of the causes of inequality between regions, and, secondly, a reverse impact of GRP level on differentiation of population's incomes to determine the further policy of regional development management.

2.2 Comparative diagnosing the government programs and national projects of regional development, digitalization and support for SMEs

Nowadays, political modernization and an introduction of new state planning model is the most important step towards building a new, fair Kazakhstan.

All over the world, the state planning system has undergone significant changes. Thus, the UK and Malaysia have become leading countries in introducing the project

approach. Similar experience exists in Kazakhstan, where project offices have been operating since 2018.

The new state planning system, approved by Decree of the Government of the Republic of Kazakhstan dated February 26, 2021 No. 99, is built in compliance with the principles of continuity on existing and new documents (Figure 15).

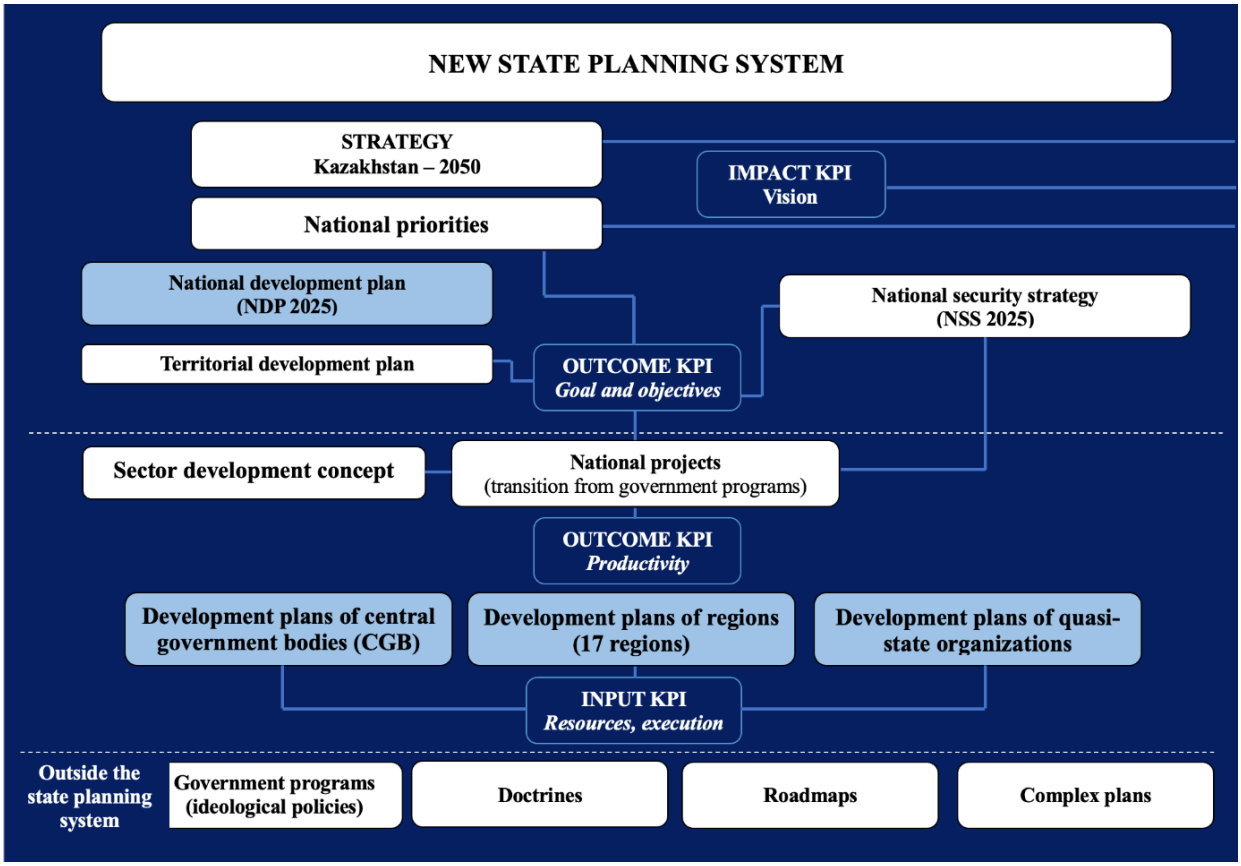


Figure 15 – New state planning system

Remark – source [141]

The new system identifies three levels of documents that ensure the development of the country for different periods: long-term (over 5 years), medium-term (from 1 year to 5 years inclusive).

The first level includes such fundamental documents as «Kazakhstan-2050» Strategy, National Priorities, National Development Plan, as well as the Territorial Development Plan and National Security Strategy. These documents serve as the basis for the entire structure. The second level covers various concepts, action plans and national projects. The third level consists of executive-level documents, including development plans of central government bodies, regions and quasi-state organizations.

Changes in state planning system of the Republic of Kazakhstan are presented in Table 14.

Table 14 – Changes in the state planning system of the Republic of Kazakhstan

State planning system of the Republic of Kazakhstan	
Decree of the Government of the Republic of Kazakhstan dated November 29, 2017 No. 790	**Decree of the Government of the Republic of Kazakhstan dated February 26, 2021 No. 99**
1 level	
Development strategy of Kazakhstan until 2050	Development strategy of Kazakhstan until 2050
-	National priorities
Strategic Development Plan of the Republic of Kazakhstan for the next 10 years inclusive	National Development Plan of the Republic of Kazakhstan
Forecast Scheme of the Territorial-Spatial Development of the country	Territorial Development Plan of the country
National Security Strategy of the Republic of Kazakhstan	National Security Strategy of the Republic of Kazakhstan
2 level	
Forecast of socio-economic development for 5 years	-
Government Programs (with a duration of no less than 5 years)	Sector/sphere development concept, national projects
3 level	
Strategic plans of government bodies for 5 years	Development plans of government bodies
Territorial Development Programs for 5 years	Development plans for regions, cities of republican significance, and the capital
Development strategy for 10 years for national management holdings, national holdings and national companies with state participation in the charter capital	Development plans for national management holdings, national holdings and national companies
Remark: compiled by author from sources [142, 143]	

In «Kazakhstan-2050» Strategy it is noted the importance of introducing modern management institutions and principles of corporate governance in the public sector. To implement this strategy, a new document titled «National priorities» has been introduced, which encompasses key directions for conducting institutional reforms in the country. It is crucial to emphasize the necessity of transitioning the implementation of national priorities and the activities of the state apparatus to a project-based approach.

For the first time in the country, project management was recognized as a tool for facilitating interdepartmental cooperation and operational resolution of issues between government bodies and business.

In Kazakhstan, the use of project management is closely related to the implementation of government programs and national projects. National projects and government programs are two different concepts used in corporate and government management to achieve specific goals and meet the needs of society. While they have similarities in terms of their purpose, scope and implementation, there are also critical differences between them.

National projects are large-scale initiatives aimed at achieving strategic national goals and priorities within the established timeframe. They typically focus on such

priority areas as economic development, infrastructure, social welfare, education, health and innovations. National projects often involve substantial financial investments and require the coordinated efforts of many government bodies, private sector organizations and civil society organizations. These projects are designed to stimulate progress and transformations at the national level, with a focus on achieving tangible results and making a significant impact on society.

On the other hand, government programs refer to government initiatives that cover a wider range of policies, strategies and actions aimed at addressing various questions and issues in a concrete area or sector. Government programs generally represent long-term plans outlining goals, objectives, tasks and activities that government bodies must undertake to attain concrete tangible results. They cover different areas such as education, health, agriculture, environmental protection, regional development and cultural heritage preservation. Government programs provide the foundation for policy implementation, resource allocation, and progress monitoring in a concrete sector.

A comparative analysis of the concepts of national projects and government programs can be conducted on the basis of their definitions, scope, goals, implementation and impact.

We suggest the following differentiation of content aspects:

1. Definitions

– Government program is document that defines goals, objectives and approaches to the realization of separate policies, mainly concerning ideological, regulatory, etc. development aspects and not requiring allocation of substantial financial resources. The formulation of government programs is conducted in accordance with the Constitution, legislative acts, and upon the instruction of the President of the Republic of Kazakhstan.

– National project is a document ensuring comprehensive interdepartmental interaction and prioritized budgetary financing for the realization of a set of measures, aimed at solving, within the established timeframes, specific issues (projects), separate critically important for achieving the national priorities, goals, strategic indicators of the Republic of Kazakhstan's National Development Plan, National Security Strategy, the Country's Territorial Development Plan, or those designated by the President of the Republic of Kazakhstan [144].

2. Scope

The state planning system in Kazakhstan includes a transition from large-scale state programs to national projects.

– The government program covers broad areas of national importance and often several sectors such as infrastructure, education, health, agriculture and manufacturing industry with limited funding.

– National projects are conceptualized as instruments for the implementation of crucial national priorities, goals, tasks and indicators outlined in National Development Plan until 2025. The conciseness of a national project is a mandatory criterion for the formulation of document. It is anticipated that national projects will receive priority funding to ensure their successful realization.

3. Goals

– Government programs are documents aimed at attaining the goals of Addresses of the President of the Republic of Kazakhstan on prioritized strategic directions of country's development and are elaborated for a period of at least 5 years. The fundamental goals of the government program are to increase global competitiveness, sustainable and balanced economic growth, and accelerate the rate of socio-economic development of the country.

– National projects are documents that are centered on improving the quality of life and welfare of Kazakhstanis. The projects combine key indicators outlined in «Kazakhstan-2050» Strategy, National Priorities and National Development Plan. Each national project is oriented to effective solution of existing problems and further development of critical sectors in line with an integrated «nationwide» project approach.

4.Responsibility and accountability:

An important difference between national projects and government programs is the clear assignment of individual responsibility. Regarding national projects, the relevant minister is directly responsible for each project. However, to carry out concrete tasks within the project, a participation of other bodies is anticipated and their responsibilities are also delineated and determined. Therefore, national projects establish clear guidelines for defining KPIs and responsibilities between government structures.

5. Impact

– Government programs are designed to have an effect on a national scale. Their success is measured by ability to achieve set outcomes, stimulate economic growth, enhance social well-being and solve national challenges and issues.

– National projects are focused on the development of important industries and the effective solution of existing problems in the format of joint work of government bodies in order to attain common government objectives. Their success is measured by ability to address and improve regional development indicators, increase the quality of life and achieve established goals in a specific area.

6. AGILE – framework

Conditions of uncertainty and current crisis phenomena in the world, as well as the repercussions of COVID-19 pandemic, determine the urgent need for timely rapid response and forecasting of potential risks, challenges and threats. The realization of national projects will be built and implemented on the basis of an agile approach, i.e. maximum rapid adaptation to changing situations.

The state planning system is transitioning from complex program-target structures (government programs) to flexible, result-oriented project management models.

Considering the multi-purpose nature of state regulation and the limitedness of funds and resources, a question of the actual return on the use of public investments and their direct alignment with the strategic objectives of the state becomes paramount when making decisions. For this purpose, a comparative analysis was carried out using the example of separate government programs and national projects in the areas of regional development, digitalization and the development of entrepreneurship and business (Table 15).

Table 15 – Comparative analysis using the example of separate government programs and national projects

Differentiation	GP of regions' development for 2020 - 2025 years	NP «Strong regions – country's development driver»
Goal	Increase of regions' economic competitiveness and improvement of population's quality of life through managed urbanization	Создание комфортной среды проживания граждан за счет обеспечения равного доступа населения к базовым услугам, улучшения жилищно-коммунальных условий и развития жилищного строительства, а также обеспечения транспортной связанности и повышения транспортно-транзитного потенциала страны
Objectives	1. Development of functional urban areas - agglomerations with centers in Nur-Sultan, Almaty, Shymkent and Aktobe cities 2. Development of functional urban areas with centers in regional centers, Semey city 3. Development of mono-cities with a population size of more than 50 thousand people that are not part of functional urban areas 4. Development of border mono- and small cities with adjacent territories 5. Development of rural settlements	*Direction I. Equal access to basic services* Objective 1. Complex infrastructure development Objective 2. « Zhaily turgyn uy» (Comfortable housing) *Direction II. Enhancing transport connectivity* Objective 1. Internal transport network development Objective 2. Increasing connectivity of territories
Realization period	2020 - 2025	2021 – 2025
Budget	412,8 bln. tenge of which 971 mln. tenge are extra-budgetary funds	7,5 trln. tenge of which 2,7 trln.tenge are extra-budgetary funds
Executive parties	1.MNE 2. MIID 3. MA 4. MF 5. MLSPP 6. MDDIAI 7. MEGNR 8. MH 9. MFA 10. MISD 11. MES 11. ME 12. Akimats of regions, cities of Nur-Sultan, Almaty and Shymkent. 13. «NWF «Samruk-Kazyna JSC». 14. «NGEC «Qazgeology» JSC	1.MNE 2. MIID 3. MF 4. MA 5. MISD 6. MEGNR 7. MLSP 8. Akimats of regions, cities of Nur-Sultan, Almaty and Shymkent. 9. «NWF «Samruk-Kazyna JSC». 10. NCE RK «Atameken». 11. «KazCenter Housing and Public Utilities» JSC 12. «Baiterek» NMH» JSC 13. «Otbasy bank» JSC 14. «KHC» JSC 15. «KazAvtoZhol» NC» JSC 16. JSC NC «KTZh» 17. «Almaty International Airport» JSC 18. «Kostanay International Airport» JSC 19. «SCAT» JSC 20. «Aqjaiyq» SEC JSC 21. «Industrial Development Fund» JSC 22. «Aktau Sea Commercial Port» NC JSC 23. «AIFC» JSC 24. «Aviation Administration of Kazakhstan» JSC
Responsible parties	1. Ministry of National Economy (MNE) 2. Local executive bodies of oblasts (LEB) 3. Local executive bodies of Nur-Sultan, Almaty and Shymkent cities	1. Vice Minister of National Economy 2. First Vice Minister of Labor and Social Protection of Population 3. First Vice Minister of Industry and Infrastructure Development 4. Vice Minister of Industry and Infrastructure Development 5. Vice Minister of Ecology, Geology and Natural Resources 6. Vice Minister of Agriculture 7. Vice Minister of Information and Social Development 8. Akims of regions, cities of Nur-Sultan, Almaty and Shymkent 9. Director of the DRR MNE 10. Deputy akims of regions, cities of Nur-Sultan, Almaty and Shymkent 11. Deputy Chairman CLSPM MLSPP 12. Chairman of «KazCenter» Housing and Public Utilities JSC 13. Chairman of Construction and Housing-Communal Services Affairs Committee of the MIID 14. Chairman of Water Resources Committee MEGNR 15. Board Chairman of «Baiterek» NMH» JSC 16. Chairman of «Otbasy Bank» JSC 17. Chairman of «KHC» JSC 18. Chairman ща Committee on Youth and Family Affairs of the MISD 19. Chairman of Committee of Highways of the MIIR 20. «KazAvtoZhol» NK» JSC 21. Chairman of Transport Control Committee of the MIIR 22. Chairman of JSC NC «KTZh» 23. President of «Aktau Sea Commercial Port» NC JSC 24. Chairman of Civil Aviation Committee of the MIID 25. Director of «Kostanay International Airport» JSC 26. Chairman of the Board of «Aqjaiyq» SEC JSC 27. President of «SCAT» JSC 28. President of «Almaty International Airport» JSC 29. Board Chairman of

		«AIFC» JSC 30. General Director of «Aviation Administration of Kazakhstan» JSC 31. Board Chairman of «Industrial Development Fund» JSC
Alignment with strategic and program documents	1. Strategic Development Plan of the Republic of Kazakhstan until 2025 2. Forecast Scheme of the Territorial-Spatial Development of the country until 2030 3. Message from the Head of State to the people of Kazakhstan dated October 5, 2018 «Increasing the welfare of Kazakhstanis: rising income and quality of life»	1.Strategy «Kazakhstan-2050» – new political course for new Kazakhstan in rapidly changing historical conditions» 2.National Development Plan 3.National Security Strategy 4. Territorial Development Plan of the country 5. Sector/sphere development concept (if available)
Benefits/ Socio-economic Impact	– Increase of the urbanization level by 3,1%; – Reduction of GRP per capita gap between regions from 3,1 to 2,7 times; – Rise of population's real incomes by 30,1%.	*Economic effect:* – increase of GRP of the capital and cities of republican significance by 3,9 %; – rise of transit cargo flows from 22,7 to 30 mln. tons; – improvement of Kazakhstan's position in the WEF Global Competitiveness Ranking under the «Infrastructure» category from 62 to 49 and in the World Bank's «Logistics Performance Index» from 71 to 50 (LPI); – creation of 491,1 thousand jobs, including: 15,7 thousand permanent 475,4 thousand temporary; *Social effect:* – increase of the urbanization level from 59,1 % to 62,6%; – increase of the population size in agglomerations and regional centers (including Semey) annually by 1,7%; – attracting to the rural settlements more than 21 thousand specialists in the field of health care, education, social security, culture, sports and agro-industrial complex, as well as civil servants of akims' apparatus of villages, settlements, rural okrugs; – ensuring improvement of living conditions for 236,7 thousand families; – ensuring 100% access to water supply services in cities; – ensuring 100% access to water supply services in villages; – rise of the employment rate of migrants and kandas, including with the development of entrepreneurial initiatives from 79% to 87%.
Дифференциация	**GP «Digital Kazakhstan»**	**NP «Technological breakthrough through digitalization, science and innovations»**
Goal	Accelerating the development rate of the republic's economy and improving the population's quality of life using digital technologies in the medium term, as well as creating conditions for the transition of Kazakhstan's economy to a fundamentally new development trajectory, ensuring the creation of a digital economy of the future in the long term perspective	The formation of Kazakhstan as a modern country with effective public administration through digital transformation, making decisions based on reliable data, as well as ensuring the effective and safe use of infrastructure in the digital era, increasing the contribution of science to the socio-economic development of the country
Objectives	1. Digitalization of manufacturing and power sectors 2. Digitalization of transport and logistics 3. Digitalization of agriculture 4. Development of e-commerce 5. Development of financial technologies and non-cash payments	*Direction I. Services in 5 minutes* Objective 1. Transformation of approaches to the provision of public services Objective 2. Ensuring the availability of all government services on a smartphone Objective 3. Modernization and development of public service centers *Direction II. Development of IT sector* Objective 1. Increasing local content of ICT products of the Republic of Kazakhstan

	6. State – to citizens 7. State – to business 8. Digitalization of internal activities of government bodies 9. «Smart» cities 10. Expanding the coverage of communication networks and ICT infrastructure 11. Ensuring information security in the ICT field 12. Increasing digital literacy in secondary, technical, professional and higher education 13. Increasing digital literacy of population (training, retraining) 14. Support of innovative development platforms 15. Development of technological entrepreneurship, startup culture and R&D 16. Attracting venture capital funding 17. Formation of demand for innovations	Objective 2. Bringing ICT exports to $500 million *Direction III. Listening and effective state* Objective 1. Reduction of document flow and requests between government bodies Objective 2. Transition to online accounting of industry data Objective 3. Introduction of digital tools for interaction between citizens and the government apparatus Objective 4. Development of digital akimat *Direction IV. Цифровые инструменты для комфортной жизни* Objective 1. Digitization of employment contracts Objective 2. Digitalization of healthcare system Objective 1. Availability of school content from home 24/7 Objective 2. Development of digital public security measures *Direction V. Development of technological and innovative business* Objective 1. Development of innovations in business Objective 2. Digitalization of agriculture Objective 3. Digitalization of fuel and energy complex Objective 4. Digitalization of housing and communal services and construction Objective 5. Digital environmental monitoring and geological data Objective 6. Digitalization of the transport sector *Direction VI. High-quality Internet and information security* Objective 1. Providing 100% of citizens with high-quality Internet Objective 2. Creation of a regional data hub Objective 3. Protection of personal and government data *Direction* VII. *Strengthening the human resources potential of science - the scientist is at the center of attention* Objective 1. Increasing the number of scientists and researchers by 1,5 times *Direction VIII. Increasing the competitiveness of the scientific ecosystem* Objective 1. Improving the quality of research institutes *Direction IX. Increasing the contribution of science to the development of the country «Science-production-business»* Objective 1. Growing contribution of science to the country's development *Direction X. Improving the administration of sciences* Objective 1. Improving legislation and de-bureaucratizing science
Realization period	2018 - 2022	2021 – 2025
Budget	108,7 bln. tenge, of which 129 bln.tenge are extra-budgetary funds	2,3 trln. tenge
Executive parties	1. MDDIAI 2. Central and local executive bodies 3. State bodies directly subordinate and accountable to the President of the Republic of Kazakhstan 4. Subjects or entities of quasi-state sector	1. MDDIAI 2. NB RK 3. MTI 4. MFA 5. MIID 6. MES 7. MNE 8.MF 9. MJ 10. ME 11. MCS 12. MA 13. Agency of the Republic of Kazakhstan for Civil Service Affairs 14. MLSPP 15. MH 16. Committee of Sanitary and Epidemiological Control of the MH 17. The Prosecutor General's Office of the Republic of Kazakhstan 18. Supreme court 19. MEGNR 20. MISD 21. National Security Committee 22. LEB 23. «AIFC» JSC 24. «KazTransGas» JSC 25. «KOREM» JSC 26. «KEGOC» JSC 27. «State Corporation «Government for Citizens» NJSC 28. JSC NC «KTZh» 29. NCE RK «Atameken» 30. «Kazakhtelecom» JSC 31. «Baiterek» NMH» JSC 32. RSE on the right of economic management «Kazvodkhoz» of the Committee of Water Resources of the MEGNR 33. «Transtelecom» JSC

Responsible parties	1. MIID 2. ME 3. MA 4. MTI 5. MDDIAI 6. Zerde National Infocommunication Holding JSC 7. Telecommunication operators 8. LEB 9. Interested government bodies 10. «QazTech Ventures» JSC 11. MNE 12. KEGOC JSC 13. NB 14. MF 15. MIC 16. MES 17. CF «International Technopark of IT Startups «Astana Hub» 18. The Autonomous Cluster Fund «Park of Innovative Technologies» (ACF PIT) 19. AIFC	1. Vice Ministers of Digital Development, Innovation and Aerospace Industry 2. Deputy akims of regions and cities of republican significance 3. Board Chairman of JSC «Holding «Zerde» 4. Central government bodies 5. Board Chairman of «NWF «Samruk-Kazyna JSC» 6. General Director of the CF «International Technopark of IT Startups «Astana Hub» 7. Interested bodies and organizations 8. Vice Minister of Education and Science 9. Vice Minister of Culture and Sports 10. Vice Minister of Trade and Integration 11. Vice Minister of Industry and Infrastructure Development 12. Board Chairman of JSC «NIT» 13. Board Chairman of State Corporation «Government for Citizens» NJSC 14. Vice Minister of Labor and Social Protection of the Population 15. President of the JSC «Labour Resources Development Center» 16. Vice Minister of Health 17. Chairman of the National Security Committee 18. Minister of Internal Affairs 19. Minister of Defense 20. Head of the Department of Presidential Affairs of RK 21. General Director of the Republican Center of e-Health 22. Private healthcare providers 23. Deputy Minister of Internal Affairs 24. Deputy Prosecutor General 25. Vice Minister of Agriculture 26. Board Chairman of NCE RK «Atameken» 27. Vice Minister of Energy 28. Vice Minister of National Economy 29. Vice Minister of Ecology, Geology and Natural Resources 30. Board Chairman of JSC «NC «Kazakhstan Gharysh Sapary» 31. General Director of «Baiterek» NMH» JSC 32. Board Chairman of JSC «KOREM» 33. Board Chairman of JSC «KEGOC» 34. General Director of «Gosgradkadastr» 35. Telecommunication operators 36. Chairman of JSC «Kazakhtelecom» 37. Board Chairman of JSC «AIFC» 38. Deputy Chairman of the National Security Committee 39. First Vice Minister of Agriculture 40. First Vice Minister of Labor and Social Protection of the Population 41. Deputy Minister of Defense 42. Head of the apparatus of MES 43.Chairman of ASPR 44. Director of DDT MDDIAD 45. Chairman of PSC MDDIAD 46. Vice Minister of Justice 47. Vice Minister of Finance 48. Deputy Chairman of the National Bank 49. Директор DFT of NB 50. Director of DD MLSPP 51. Director of DD oMCS 52. Director of DD MIT 53. Director of DSPIFC MDDIAI 54. Board Chairman of JSC «Kazpost» 55. Director DDIICT MDDIAI 56. Kazakhstan Association of IT Companies 57. Vice Minister of Foreign Affairs 58. Director of DD MFA 59. Board Chairman of JSC «KazakhInvest» 60. Board Chairman of JSC «Central Securities Depository (KCSD)» 61. Board Chairman of JSC NC «KTZh 62. Director of DDT MIID 63. Board Chairman of JSC «Kazakhstan Industry and Export Center «QazIndustry» 64. Director DREP MDDIAI 65. Association of Information Technologies Producers and Infocommunications Entities «ITProm» 66. Director of DIESTD MDDIAI 67. Chairman of Information security Committee of MDDIAI 68. Vice-chairman of the Agency of the RK for Regulation and Development of Financial Market 69. Vice-chairman of FMA 70. General Director of an innovative programming school QWANT 71. School of programming «Alem» 72. Director of DDIP MNE 73. Director of DD MF 74. Director of DD MJ 75. Chairman of BNS ASPR 76. Deputy Head of the Department of SC 77. Board Chairman of JSC «E-Finance Center» 78. Director of DD MH 79. Chairman of CSEC MH 80. Kazakhstani equipment manufacturers 81. Software developers 82. Vice Minister of Information and Social Development 83. First Deputy Chairman of AIC 84. Deputy Chairman of ACSA 85. Director of DVR MDDIAI 86. Private healthcare providers 87. Suppliers of medical information systems 88. General Director of «NCE» 89. Chairman of «National Coordination Center For Emergency Medicine» MH 90. Chairman of LLP «SK Pharmacy» 91. Chairman of CFPhC MH 92. General Director of «NCME 93. Minister of Health 94. Private partners 95. Director of DD MES 96. Educational publishing houses 97. Director of DIS MIA 98. Board Chairman JSC «STS» 99. Chairman of CLSSA of the Prosecutor General's Office 100. Director of ACF PIT 101. Director of PSDAIC MA 102. Board Chairman of «Baiterek» NMH» JSC 103. Board Chairman of «KazAgro» NMH 104. Board Chairman of JSC «NAID «QazInnovations» 105. Board Chairman of JSC «QazTech Ventures» 106. Director of PMT «Fostering Productive Innovations» 107. Chairman of AKK MDDIAI 108. Board Chairman of JSC «National Center of Space Research and Technology» 109. Director of «Fesenkov Astrophysical Institute» 110. Director of DDD

		MDDIAI 111. Chairman of CGC MDDIAI 112. Director of DD ME 113. Director of JSC «Information - analytical Center of Oil and Gas» 114. Board Chairman of JSC «KazTransGas». 115. Chairman of TRMC MTI 116. Deputy Chairman of APDC 117. Chairman of «KazCenter» Housing and Public Utilities JSC 118. Chairman of CERC MEGNR 119. Director of DEPSD MEGNR 120. Director of DDCSR MEGNR 121. General Director of RSE CEC IACEP (RSE CEC «Information and analytical center of environment protection») 122. Chairman of Forestry and Wildlife Committee MEGNR123. Environmental institutions 124. Board Chairman of «International green technologies and investment projects Center» NJC (Center). 125. Chairman of Fisheries Committee of MEGNR 126. Chairman of Water Resources Committee of MEGNR 127. General Director of RSE «Kazvodkhoz» 128. Chairman of Geology Committee MEGNR 129. Board Chairman of «Qazgeology» JSC 130. Director of «Institute of space technique and technology» 131. Chairman of Committee of Highways of the MIIR 132. Board Chairman of «KazAvtoZhol» NC» JSC 133. Chairman of Transport Committee MIIR 134. General Director of RSE «Kazakhstan su zholdary» 135. Board Chairman of «Aktau Sea Commercial Port» NC JSC 136. General Director of «Kuryk Port» LLP 137. Chairman of TC MDDIAI 138. Director of RSE «State Radio Frequency Service» 139. Board Chairman of JSC «Transtelecom» 140. Association of Information Security 141. Deputy Minister of Foreign Affairs 142. Director of DIS NSC 143. Chairman of «Association of Financiers of Kazakhstan» 144. Chairman of SC MES 145. Director of Department of Higher and Postgraduate Education MES 146. Chairman of Committee for Quality Assurance in the Sphere of Education MES 147. Research institutes 148. Universities 149. President of JSC «Science-Fund» 150. President of AEO «Nazarbayev University» 151. President of JSC «National Center of Science and Technology Evaluation»
Alignment with strategic and program documents	Address of the President of the Republic of Kazakhstan «The Third Modernization of Kazakhstan: Global Competitiveness» dated January 31, 2017	1.Strategy «Kazakhstan-2050» – new political course for new Kazakhstan in rapidly changing historical conditions» 2.National Development Plan 3.National Security Strategy 4. Territorial Development Plan of the country 5. Sector/sphere development concept (if available)
Benefits/ Socio-economic Impact	– Labor productivity increase in the «Mining and quarrying» section in 2022 – 38.9%; – Labor productivity increase in the «Transport and Warehousing» section in 2022 – 21.2%; – Labor productivity increase in the «Agriculture, forestry and fisheries» section in 2022 – 82.0%; – Labor productivity rise in the «Manufacturing Industry» section in 2022 – 49.8%; – Share of e-commerce in the total volume of retail trade in 2022 – 2.6%; – Growth of created jobs due to digitalization in 2022 – 300; thousand people; – Share of government services received electronically from the total volume of government services in 2022 – 80%; – Share of Internet users in 2022 – 82.3%; – Digital literacy rate in 2022 – 83%; – Improvement in the WEF GCI ranking under the «Growth of Innovative Companies» indicator in 2022 – 104 place;	*Economic effect:* – 79 billion tenge of taxes annually from the crypto industry; – increasing the share of GDP in the ICT sector to 5%; – share of private co-financing of commercialization projects of results of scientific and scientific-technical activities (RSSTA) and applied scientific research – 50%. *Social effect:* – Public services in 5 minutes on a smartphone; – Internet with guaranteed speed (city – 10 Mb/sec, village – 5 Mb/sec); – creation of 100,000 new jobs; – increase of the number of scientists and researchers to 34 thousand people.

	– The volume of attracted investments in startups in 2022 – 67 billion tenge; – Information and communication technologies development index in 2022 – 30 place.	
Differentiation	**GP Business Support and Development «Business Roadmap – 2025**	**NP Development of Entrepreneurship for 2021 - 2025 years**
Goal	Ensuring sustainable and balanced growth of regional entrepreneurship, as well as maintaining existing and creating new permanent jobs	Ensuring qualitative changes in the structure of entrepreneurship: – development of small businesses with the aim of increasing population's employment rate; – reliance on medium-sized businesses – a driver of economic sectors's diversification; – complex development of competition - equal conditions for business entities
Objectives	1. Increasing access to financing of small businesses, including micro-businesses. 2. Excluded by Decree of the Government of the Republic of Kazakhstan dated July 30, 2020 No. 491. 3. Increasing the volume of manufactured products in the manufacturing industry. 4. Creation of new competitive industries. 5. Excluded by Decree of the Government of the Republic of Kazakhstan dated April 20, 2020 No. 225. 6. Information and analytical support for entrepreneurship. 7. Improving the competencies of entrepreneurs. 8. Expanding business connections and networks	*Direction 1. Enhancement of entrepreneurial activity* Objective 1. Creation of conditions for the initiation and development of one's own business Objective 2. Supporting entrepreneurs through the organization of subsidized jobs and development of skills tailored to the needs of entrepreneurs *Direction 2. Accelerating the growth of entrepreneurs* Objective 1. Reducing the administrative burden on entrepreneurs Objective 2. Increasing the availability of financing for business entities Objective 3. Formation of modern trade formats, including full-cycle infrastructure from manufacturer to consumer *Direction 3. Formation of new niches* Objective 1. Creating favorable conditions for tourism development Objective 2. Introduction of modern technologies in the development of tourism sector *Direction 4. Complex development of competition* Objective 1. Ensuring access to markets in the electricity sector as part of eliminating pricing distortions Objective 2. Development of exchange (organized) trading to ensure access to «key power» and eliminate pricing distortions Objective 3. Reducing state involvement
Realization period	2020 – 2024	2021 – 2025
Budget	457,4 bln. tenge	8,5 trln. tenge (including extra-budgetary funds – 7,3 trln. tenge)
Executive parties	1. MNE 2. Central and local executive bodies, subjects or entities of quasi-state sector	1.MNE 2.MTI 3. MLSPP 4. MCS 5.MIID 6. MIF 7.MF 8.ME 9. MFA 10. NSC 11.APDC RK 12. Local executive bodies 13. NCE RK «Atameken» 14. JSC «NK «Kazakh Tourism» 15.JSC «Industrial Development Fund» 16.«Damu» 17. JSC «NC «KazAvtoZhol» 18.JSC «NC «Kazakh Invest» 19. JSC NC «KTZh» 20. JSC «KOREM» 21.NJSC «International University of Tourism and Hospitality» 22. AIFC
Responsible parties	1. MNE 2. LEB 3. JSC «Damu» Entrepreneurship Development Fund» (as agreed) 4. NCE RK «Atameken» (as agreed) 5. AEO «Nazarbayev University» (as agreed).	1. Vice Minister of Labor and Social Protection of the Population 2. First Vice Minister of National Economy 3. First Deputy Chairman of the Board of NCE RK «Atameken» 4. Akims of regions and cities of Nur-Sultan, Almaty, Shymkent 5. Deputy Chairman of the Board of JSC «Damu» EDF» 6. Deputy Chairman of the Board of NCE RK «Atameken» 7. Vice Ministers of Trade and Integration 8. Vice Minister of Culture and Sport 9. Board Chairman of JSC «NC «Kazakh Tourism» 10. Deputy Minister of Foreign Affairs 11. Board Chairman of JSC «NC «Kazakh Invest» 12. Deputy Chairman of the National Security Committee 13. First Deputy Minister of Internal Affairs 14. First Deputy Chairman of the Board of APDC RK 15. Vice Ministers of Energy 16. Board Chairman of JSC «KOREM» 17. Vice Minister of Industry and Infrastructure Development 18. Vice Ministers of Finance 19. Vice Ministers of National Economy 20. Director of DE MLSPP 21. Director

		of DSSPE MNE 22. Deputy akims of regions and cities of Nur-Sultan, Almaty and Shymkent 23. Supervising vice ministers of the central executive bodies 24. Deputy Director DEDP MNE 25. Board Chairman, member of the Board of Directors of JSC «Kazakhstan Stock Exchange» (KASE) 26. Director of EPD MTI 27. Director of DTCP MNE 28. Director of DIEC MNE 29. Chairman of State Revenue Committee MF 30. Director of DTPI MIID 31. AIFC 32. JSC NC «KTZh» 33. Chairman of Committee of Tourism Industry MCS 34. Vice Minister of Foreign Affairs 35. Rector of NJSC «International University of Tourism and Hospitality»36. Chairman of IC MFA 37. Chairman of CMS MIA 38. Director of DFEC 39. Director of EPDD ME 40. Chairman of CRNM MNE 41. Director of DIT MTI 42. Director of DGP ME 43. Director of DEC APDC 44. Director of DECCSE APDC 45. Director of DPAMP MNE 46. Director of DBP MNE 47. Chairman of CSPP MF
Alignment with strategic and program documents	Decree of the President of the Republic of Kazakhstan dated October 12, 2018 No. 772 «On measures to implement the Address of the Head of State to the people of Kazakhstan dated October 5, 2018 «Increasing the welfare of Kazakhstanis: rising income and quality of life»	1. Strategy «Kazakhstan-2050» – new political course for new Kazakhstan in rapidly changing historical conditions» 2.National Development Plan (nationwide priorities and objectives, strategic indicators) 3.National Security Strategy (direction/target indicators) 4. Territorial Development Plan of the country 5. Sector/sphere development concept (if available)
Benefits/ Socio-economic Impact	1. Bringing the share of SMEs in GDP to at least 33,8%. 2. Increase of tax revenues from Program participants by 2 times from the 2017 level. 3. Creation of 30 thousand new jobs by Program participants. 4. Bringing the share of manufacturing industry in GDP structure to at least 13,4%. 5. Bringing the share of medium-sized businesses in the economy to at least 13,7%.	*Economic effect:* 1. Increasing the share of SMEs in GDP to 35%. 2. Growth of the volume of tourism in GDP to 8.4 trillion tenge. 3. Reducing the state's share in the economy to 14%. 4. Creation of 995.3 thousand jobs, including: – permanent – 335,1 thousand, – temporary – 660,2 thousand. *Social effect:* 1. Employment of citizens in permanent jobs– 1,7 million people; 2. Coverage of the population with active measures to foster employment – 3,5 million people; 3. Decrease of the share of rural population with incomes below the subsistence level– 6,5 %.
Remark: compiled by author from sources [144, 145]		

On January 15, 2021, during government meeting the Head of the country emphasized the importance of transition from state programs to national projects in a short time.

Further, it is suggested to make a detailed comparative analysis of these strategic planning documents.

Goal and objectives.

Goals and objectives in national projects are formulated in accordance with SMART criteria, i.e. specific, measurable, achievable, relevant and time-bound. The objectives are systematized by directions, in contrast to government programs, where only general objectives are given.

Budget.

In state programs, there were issues related to underfunding. For the implementation of national projects, assignations from the state budget are provided in substantial amounts (18-20 times exceeding numbers).

Executive and responsible parties.

In comparison with government programs, national projects contain «Distribution of responsibility and authority» section, which provides concrete data indicating departments, positions and full names. Furthermore, to accomplish specific objectives within the projects, the participation of other ministries, entities and agencies, as well as their structural divisions and units, is anticipated. Their responsibilities are clearly defined. A specific, achievable, and measurable objective is matched with concrete responsible and accountable parties.

Benefits and Advantages.

In the government programs only target indicators are defined, while in national projects economic and social effects are denoted. The main objective of national project as a document of new state policy is a transition to the principle of human-centricity, where «People are paramount». The ultimate goal is to achieve not only economic results, but primarily a positive impact on citizens, improving the quality of life and increasing the welfare of the population.

Monitoring and Evaluation.

Tracking national projects (coverage of activities related to the national project; access will be granted not only to government bodies but also to civil society structures, public councils, and expert communities)

Monitoring, control and performance evaluation will be conducted on a regular basis. Three organizations are involved in this procedure:

1. National project office under the Government, responsible for interdepartmental coordination, preparation of projects and monitoring of their implementation.

2. Special analytical office under the Agency for Strategic Planning.

3. Bureau of National Statistics providing and delivering the official statistical information.

Volume of documents.

Contrary to government program, there is a significant increase in the volume of the document in national projects, in some projects by 2 times, which is primarily

associated with the expansion of responsibility of participants of state planning and other interested parties.

The principal distinction between national projects and government programs lies in the fact that all national projects provide a clear understanding of the list and deadlines of objectives that the executive authorities face, and allow society to evaluate the performance quality of central and local executive bodies

Thus, personalized responsibility, budgeting, benefit to society, transparency, publication of national projects' results and costs are the key advantages of reforming the state planning system and transition to a project approach.

When developing government planning documents, the following aspects should be taken into account: aim and objectives, alignment with national development priorities, scale and scope, financing and budget allocation, policy initiatives, implementation mechanisms, stakeholder engagement, socio-economic impact, monitoring and evaluation, past outcomes (lessons learned).

The efficacy of any strategic document, program or development project depends on various factors, including political commitment, institutional capacity and the ability to adapt to changing circumstances.

In conclusion, it should be deduced that the realization of project activity in Kazakhstan has high potential and promising opportunities for the purposes of modernizing and increasing the efficiency of public administration, reducing budget expenses and developing the competencies of civil servants and managers.

2.3 Assessing the project management maturity of regional executive bodies

Project management maturity in government management is a critical factor in ensuring effective service delivery and successful implementation of government initiatives. Assessing the maturity level of project activity is necessary for identifying current problems and finding solutions.

Within the project community, there is a consistent interest in developing methods and proposing models for the assessment and enhancement of project management maturity in organizations. Basically, in the works of practitioners and scholars, the focus of attention is either on comparing models of assessing PM maturity without taking into account the specifics of a separate organization's activity, or on conducting PM maturity evaluation in a particular industry based on one methodology without juxtaposing it with others. Meanwhile, assessment of project management maturity and the methodologies applied for such estimation in state authorities and local self-government entities are not within the purview of project researchers.

Project Management Institute defines organizational project management maturity as the level of an organization's ability to effectively manage portfolios, programs, and projects to achieve desired strategic results in a predictable, controlled, and reliable manner [146].

Over the years of project management development, within the frames of various methodologies project management maturity models have been elaborated and formulated.

Initial Project Management Maturity Models have emerged in the mid-1990s. The concept of categorizing maturity levels in management structures dates back to quality and process management and software development project management. The Capability Maturity Model, originally built to evaluate software development processes, has become the template for many process-based maturity models in different management disciplines and directions.

Project Management Maturity Model is a framework of proven tools that allows organizations to assess, understand and improve their project management capabilities. The model provides an opportunity to ascertain the degree of organization's capability to apply the requisite practices in processes for sustainable development and the attainment of desired strategic outcomes.

The idea of PMMM is to continuously apply the cycle: assessing maturity - analyzing results - defining - taking improvement actions - re-evaluating. All this leads to an increase in the level of maturity, which in turn will bring benefits and advantages to the organization. Improvements cover areas such as schedule, cost, quality and customer satisfaction, as well as reducing project risks, aligning projects with the overall strategy of the organization, increasing transparency and communication between project top management and senior management levels (governance), increasing the motivation of project staff.

Research on project management maturity models can be divided into three stages. The first two stages were fully developed within the specified periods, while the third stage period, examining the benefits and advantages of the PM maturity degree, is ongoing [Table 16].

Table 16 – Research Stages of project management maturity models

№	Research Stage	Period	Contributors
1	Development of PMMMs, considerations on assessment techniques, cases on the application of PMMMs	1995 – 2003	Levene et al., 1995; Rosenquist, 1997; Fincher & Levin, 1997; Couture & Russett, 1998; Rosenstock, Johnston, & Anderson, 2000; Kwak & Ibbs, 2000b; Gareis, 2001; Burns & Crawford, 2002; Gareis, 2002; Bryde, 2003, Andersen & Jessen, 2003
2	Comparison of average project management maturity levels along various industries	1998 – 2006	Mullaly, 1998; Ibbs & Kwak, 2000; Cooke-Davies & Arzymanow, 2003; Pennypacker & Grant, 2003; Fuessinger, 2005; Mullaly, 2006
3	Analysis of benefits of project management maturity	2000 – present	Kwak & Ibbs, 2000a; Ibbs & Reginato, 2002; Jugdev & Thomas, 2002b; Thomas & Mullaly, 2008; Besner & Hobbs, 2008; Yazici, 2009; Jiménez Jiménez, Martínez Costa, & Martínez Lorente, 2012; Pasian, Williams, & Alameri, 2012; Brookes et al., 2014; Albrecht & Spang, 2014; Spalek, 2014 & 2015; Görög, 2016; Terlizzi et al., 2017; Kock et al., 2020; Busse et al., 2020
Remark: source [147]			

Over the past decades, a plethora of different maturity models of an organization's management system have been developed, their number is more than 30. This is explained by the existence of a relationship between the project management maturity and the likelihood of successful project realization. As a rule, a high probability of project implementation success is inherent to organizations with a mature project management environment, oriented towards a culture of continuous improvement and excellence.

Further, it is suggested to conduct a critical analysis of the most renowned models of project management maturity (CMMI, OPM3, MINCE, P3M3, SPICE, KPMMM, IPMA DELTA, SPM3, NPM3).

We will take a closer detailed look at the following prevalent models.

CMM. Capability Maturity Model (CMM), developed in the mid-1980s as part of research at the Software Engineering Institute (SEI) at Carnegie Mellon University, and funded by the US Department of Defense, aims to improve the quality and efficiency of software development projects, but also has applications for other processes such as quality assurance, procurement, resources, etc. In 2002, CMM was replaced by its successor the Capability Maturity Model Integration (CMMI).

The latest version of CMMI® 2.0 was released in 2018 with fundamental modifications:

– CMMI regained its integrity without being divided into three separate models;

– model' architecture of the has changed, consisting of 4 layers: the first of four categories (Doing, Managing, Enabling and Improving), the second of nine areas of capabilities differentiated by category, the third of twenty areas of practices and the fourth of five level of capabilities;

– access to CMMI® has become restricted and fee-based, with an option for customization tailored to specific users and their particular conditions, requirements and requests.

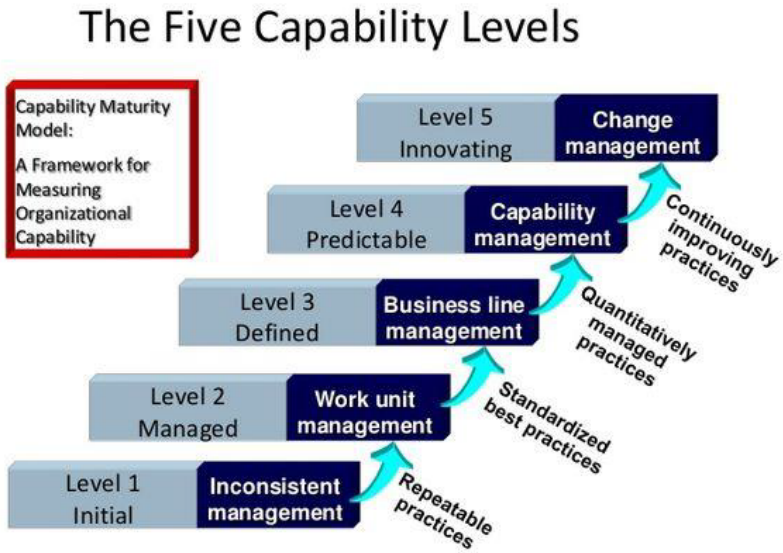


Figure 16 – Capability Maturity Model

Remark – source [148]

OPM3. In the PMI standard series of 1998, the Organizational Project Management Maturity Model, OPM3, was delineated. In 2003 it was declared as an international standard and the result of the collaborative work of more than 800 project management volunteers.

The foundation of the model consists of three essential components: knowledge – understanding the model and its realization, assessment – providing tools for self-assessment of the organization's PM maturity level and improvement – ways to increase maturity, prioritization and implementation of appropriate changes.

OPM3 suggests a measurement not through levels as in other models, but continuous tracking in two interrelated areas to obtain a systematic assessment of the maturity of company's project, program and portfolio management. One area comprises the domains: project management, program management, portfolio management, and organizational enablers. The second area contains the following: standardization, measurement, management and continuous improvement of processes (Figure 17).

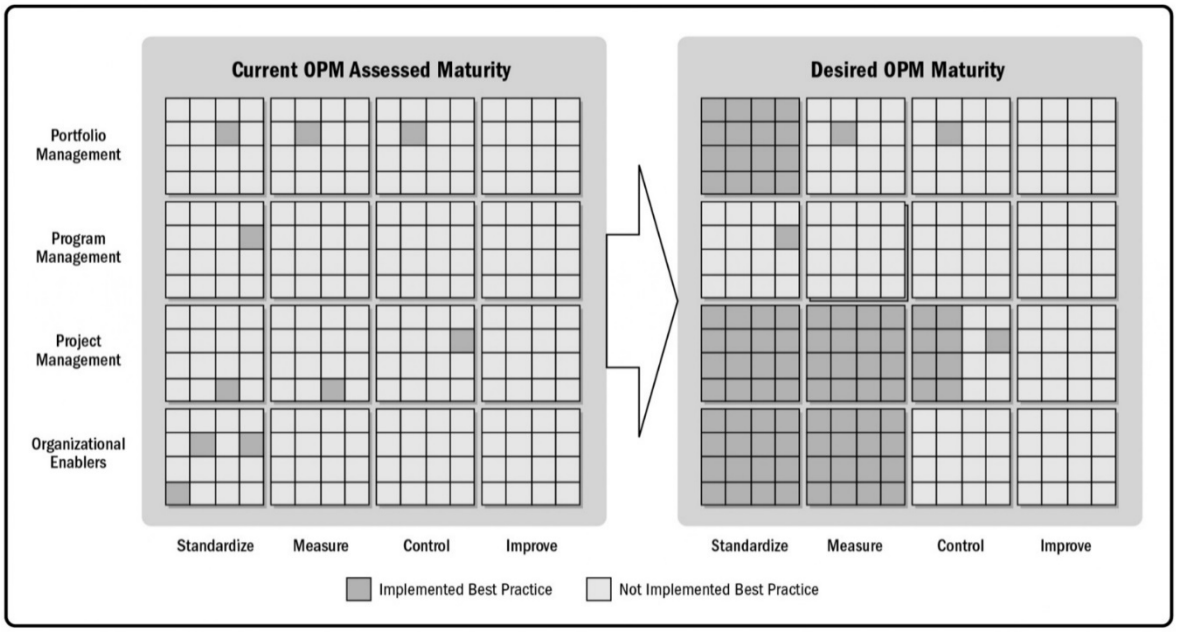


Figure 17 – High-Level Schema of Current versus Desired OPM Maturity

Remark – source [146]

The project management maturity of the organization is changing in alignment with changes in the maturity of the organization itself. Depending on the stage of PM maturity, the required set of best practices is applied. Herewith, a categorization of capabilities is presented in accordance with five groups of project management processes: initiation, planning, execution, monitoring and control and closing. The total number of possible maturity measurements is four levels (Figure 18).

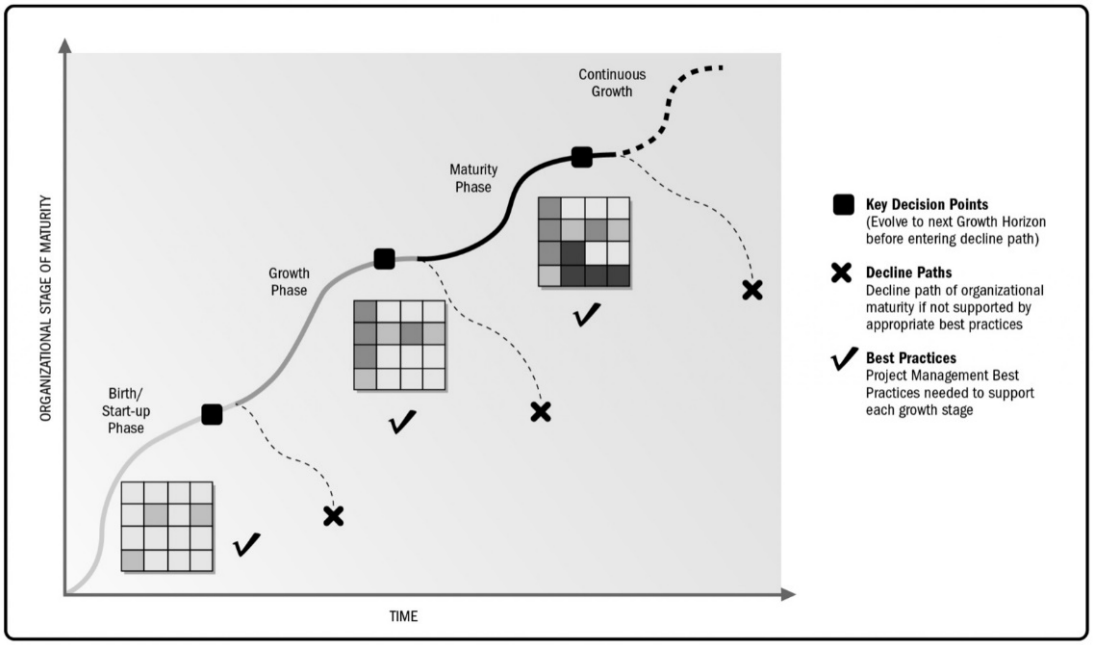


Figure 18 – Maturity Stages of an Organization

Remark – source [146]

IPMA Delta. The integrated IPMA Delta model was created in 2009 based on the combination of several standards such as IPMA Individual Competence Baseline ICB, Project Excellence Baseline PEB and Organization Competence Baseline OCB. The model is comprised of three modules: 1) «people», necessary for assessing competence, including the experience and knowledge of organization's main officials (project, program and portfolio managers, team members, administrators, stakeholders, etc.); 2) «projects», aimed at evaluating project activities, the use of project approach and the results, tools, techniques and methods of separate projects and programs; 3) «organization», which allows estimating organizational competence in the field of project management from the point of view of top management.

The model identifies 5 levels of maturity. *First*: at this stage, the organization has achieved some minor successes in project management. There is no unitary standard for the work of staff, resulting in varying levels of performance among staff. *Second*, the organization has established standards for managing projects, programs, and project portfolios. However, managerial structures and processes have not yet been systematically introduced. *Third*: The organization is making progress in applying processes of management, structures and standards. These elements are not fully applied and integrated. *Fourth*: At this stage, the organization has achieved full integration and functioning of management standards, structures and processes under the control of leadership. *Fifth*: the highest level of maturity, characterized by the complete, controlled and continuously improving functioning of all mandatory standards, structures and processes of management.

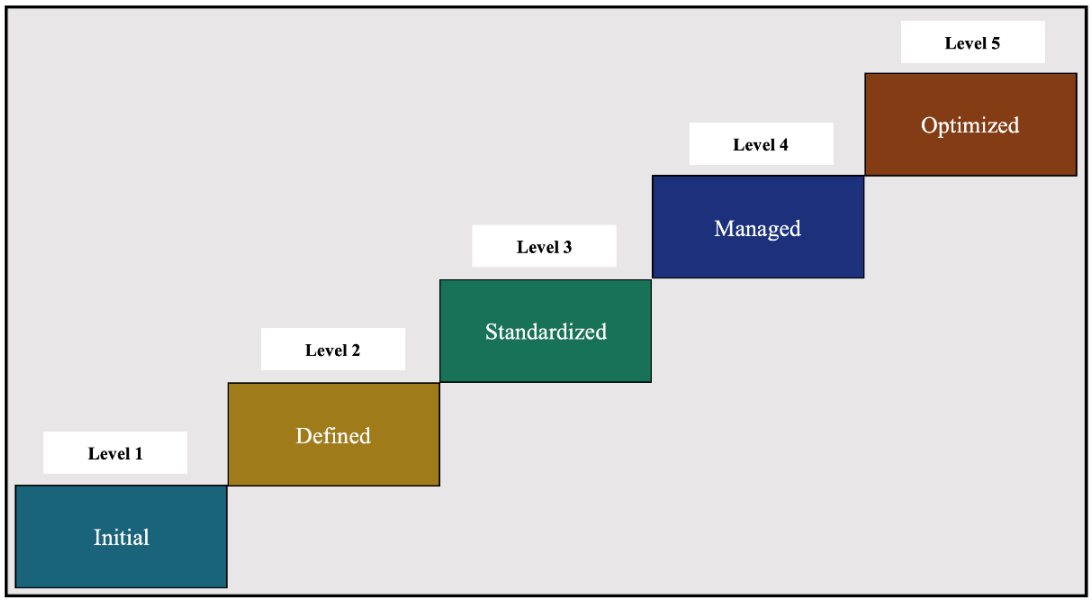


Figure 19 – IPMA DELTA Project Excellence Model

Remark – source [149]

Kerzner project management maturity model (KPMMM). The Kerzner Project Management Maturity Model is a comprehensive framework developed in 2001 by Dr. Harold Kerzner, a renowned expert in the field of project management. It was one of the most popular and widely used models prior to the introduction of the OPM3 standard.

In the model, a detailed and comprehensive description of each passable level is presented, including options for transitioning to the subsequent level, forecasting the sources of risk, resistance, threats, and barriers to level advancement. It is observed a clear link between the organization's strategy and levels of project management. This helps organizations to evaluate their project management practices and pass through five levels of maturity, from a basic understanding of project management principles to a culture of continuous improvement.

To attain high results of project activity, an organization goes through the following maturity levels (Figure 20):

Level 1: At the initial stage, an organization recognizes the importance of project management, but does not have a general understanding of the principles and terminology of project management. In this regard, projects are often executed spontaneously, which leads to inconsistencies in project outcomes.

Level 2: An organization introduces standardized project management processes and tools to replicate the success of previous projects. Project managers and team members undergo training in fundamental project management methodologies, which impacts the efficiency of communications and projects.

Level 3: An organization adopts a single, clearly defined project management methodology that has synergistic effects across all projects. There is an integration of knowledge areas with PM process groups. This promotes consistency in project delivery, improved results, and the free flow of knowledge between project groups.

Level 4: An organization draws a particular attention to the use of metrics and performance indicators for measuring project success. Comparison with industry standards and best practices becomes the norm and allows for continuous improvement of project management methods, timely reengineering of business processes and increased operational efficiency.

Level 5: At the highest level of maturity, an organization prioritizes continuous improvement of project management capabilities. Lessons learned from completed projects are documented and integrated into future projects, leading to a culture of learning and innovation.

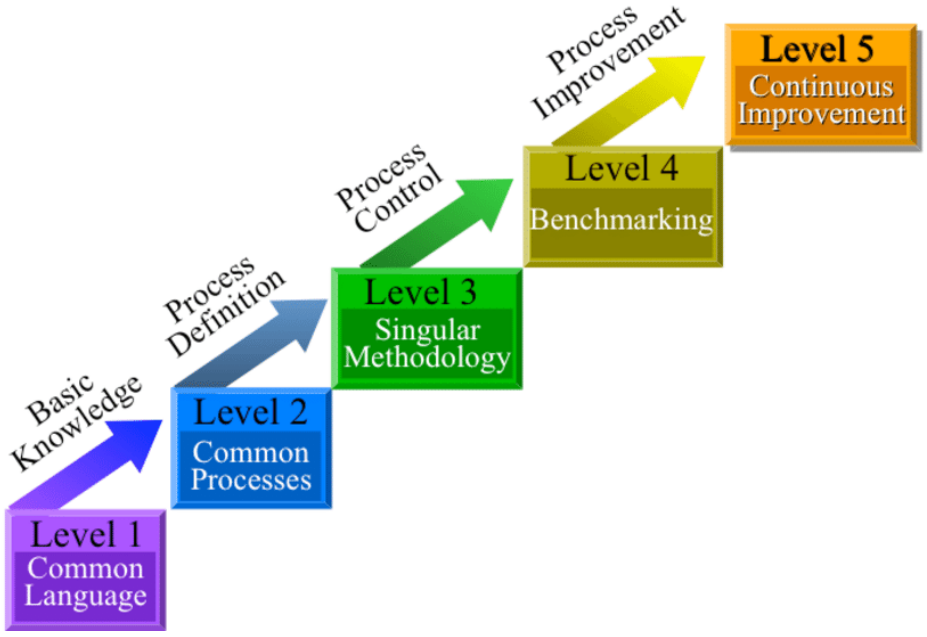


Figure 20 – The Kerzner Project Management Maturity Model, KPMMM

Remark – source [150]

H. Kerzner proposed a classification of potential employee resistance when an organization strives to achieve a higher level of maturity through various innovations:

– first type is «the established work habits» that are related to «prevailing stereotypes at work». The existing organizational culture hinders the adoption of new approaches to project management, since employees may be anchored to traditional methods and, in fulfilling their roles, often adhere to established patterns guidelines and rules. Innovations necessitate stepping out of one's comfort zone, adapting to new guidelines, implementing novel business processes, establishing new connections, and attaining new objectives.

– second type is «social groups». Resistance may arise from opposition in the control of projects or conflicts of interest between different stakeholders. Reporting to multiple project managers and temporary rotation can disrupt previously established relationships and create new communication channels.

– third type is «personal embedded fears and concerns». Employees may resist change due to fear of the unknown or concerns about new roles and responsibilities, the threat of losing their position, overtime, difficulties, confusion, possible shortcomings and failures, etc.

– fourth type is «salary allocation». Resistance may arise if modifications to the management system conflict with the established organizational structure. The transition to new levels of maturity is accompanied by restructuring, changes in positions, authority and powers, which has an effect on the status and importance of employee in the organization.

– fifth type of resistance relates to unique characteristics and circumstances of each functional unit, where different departments may exhibit specific resistance factors.

Recognizing and understanding these types of resistance is critical to effectively managing and overcoming challenges when implementing change and striving for greater project management maturity. Addressing employee concerns, providing support, and developing a culture of open communication can help to successfully innovate and achieve the desired level of maturity.

P3M3. In 2003, the UK Office of Government Commerce (OGC), based on PRINCE2 methodology, proposed the P3M3 Maturity Model, which is a comprehensive framework for assessing and expanding an organization's capabilities in effective management of portfolios, programs and projects. In 2006, the model was updated and supplemented by APM Group.

This model comprises three independent sub-models that can be applied collectively or individually:

1) portfolio management maturity model (Portfolio Management Maturity Model, PfM3);

2) program management maturity model (Program Management Maturity Model, PgM3);

3) project management maturity model (Project Management Maturity Model, PjM3).

Also, simplified submodels based on PRINCE2 are presented in the following versions: PRINCE2 Maturity Model (P2MM); Project Management Maturity Model (P1M3); Programme and Project Management Maturity Model (P2M3).

P3M3 is one of the principal standards among maturity models, offering organizations a structured framework for assessing their current performance and developing a measurable plan for improvement. The composition of the model is shown in Figure 21.

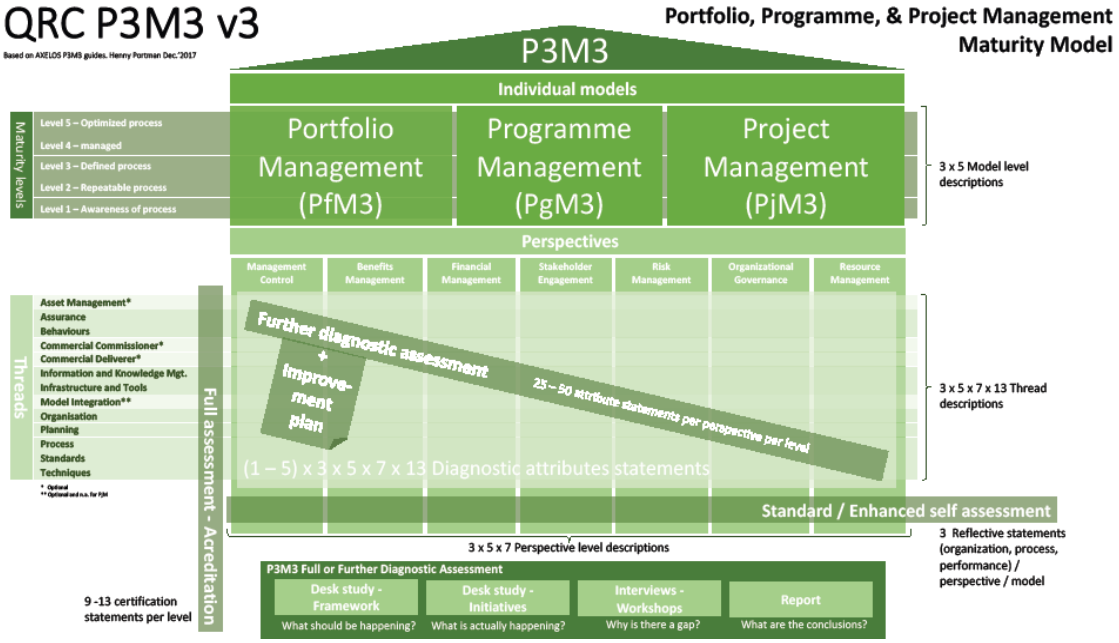


Figure 21 – OGC Portfolio, Programme and Project Management Maturity Model, P3M3

Remark – source [151]

The autonomy of each submodel allows organizations to evaluate activities separately at any level: portfolio – program – project, for example, a program management system can be more successful than a project management system. This approach assists in determining the maturity level of the organization both at individual levels and in specific perspectives (knowledge areas), such as risk management. Perspectives are systematized into one or more process areas.

P3M3 includes seven process areas that define core attributes of a mature organization: management control, benefit management, financial management, stakeholder engagement, risk management, organizational management and resource management. In all three submodels, process areas are incorporated at each maturity level. The development of an organization in terms of advancement to a higher maturity level is characterized by an increase in the quality, effectiveness and efficiency of processes.

The uniqueness of P3M3 lies in the flexibility of model, allowing for selective assessment of a specific process area (one or more) across all sub-models, or out of three, exclusively within one or two. For example, in financial management. The universality of P3M3 makes it a valuable tool for organizations aiming to enhance their project management capabilities and ensure continuous improvement.

The model consists of a five-level maturity scale, each level representing a higher degree of maturity and competency:

1. Initial. Organizations have a basic knowledge of project, program and portfolio management techniques. However, there are no standardized procedures and control systems.

2. Repeatable. Distinct project management processes are established with minimal standardization and a limited degree of consistency in managing projects, programs, and portfolios. Projects are executed using in-house resources.

3. Defined. Project management processes have been introduced and formalized. Required procedures are followed and best practices are documented.

4. Managed. The organization utilizes project databases, quantitative management metrics for tracking progress, decision-making, and modeling future states.

5. Optimized. The organization supports continuous process improvement through a proactive approach, feedback mechanism and innovation.

A review of PM maturity models shows the presence of a number of distinctive peculiarities. Nevertheless, the foundation of all models are three basic functional components: assessment, body of knowledge, improvements. The differentiation of general characteristics inherent in maturity models is presented in Table 17.

Table 17 – Common features among project management maturity models

№	Common Features	Relevant Element
1	Describing the concept of maturity	Body of knowledge
2	Defining maturity levels and the maturity path	Body of knowledge
3	Providing a self-assessment tool	Appraisal
4	Presenting practices required for improving maturity	Body of knowledge
5	Evaluating effectiveness of improvement actions	Improvement, Appraisal
6	Dependency on a specific standard	Body of knowledge
7	Continuous improvement as the last level of maturity	Improvement
8	Applying incremental changes	Improvement, Body of knowledge
Remark – source [152]		

The conducted critical analysis allowed studying and considering the main features, distinctive and general properties, as well as advantages and disadvantages known to project community of PM maturity models.

During the critical analysis, industries requiring the use of project management maturity models were identified, and significant features and distinctions inherent to specific fields of activity were elucidated. Many maturity models have proven their efficacy in assessing and identifying the strengths and weaknesses of project management, as well as in initiating improvement processes. However, the challenge remains in delivering value, positive outcomes, and quality effects from the implemented systems. The results are summarized in Table 18.

Table 18. A critical analysis of the most renowned PM maturity models

Descriptor		TITLE OF THE PROJECT MANAGEMENT MATURITY MODEL								
		SPICE	**IPMA DELTA**	**CMMI**	**KPMMM**	**P3M3**	**OPM3**	**MINCE**	**SPM3**	**NPM3**
Author		ISO	IPMA	SEI	H. Kerzner	OGC	PMI	R. Meisner	A.J. Gilbert Silvius & Ron Schipper	D.Seelhofer, C. O. Graf
PM Standards		MC ISO	ICB, OCB, PEB	_	PMBOK Guide	PRINCE2	PMBOK Guide The Standard for rogram Management, The Standard for ortfolio Management, PMCD	EFQM (European Foundation for Quality Management)	CMM/CMMI	CMMI Berkeley PM2 OPM3 KPMMM PMMM ProMMM P3M3
Version	***First***	1998	ICB (1999)	2000	2001	2003	2003	2007	2015	2018
	Last	2015	ICB (2015), OCB (2016), PEB (2016)	2018	_	2006	2013	_	2015	2018
	Industry	IT, auto,aerospace, medicine	Any sector, industry	IT	Any sector, industry	Any sector, industry	Any sector, industry	Any sector, industry	Any sector, industry	National context
Number of maturity levels		0-5	1-5	1-3	1-5	1-5	0–1	1-5	1-4	1-4
Component	***Knowledge Area***	-	ICB contains 46 competency elements	8 knowledge areas	10 knowledge areas	-	10 knowledge areas	-	-	8 perspectives
	Processes	-	-	22 processes	-	32 processes	-	-	-	-
	Best Practices	-	-	-	-	-	586 best practices; 2400 capabilities	-	-	-
Enabling program and portfolio management maturity assessments		-	-	-	-	+	+	-	-	-
Strenghts		✓ An international standard that serves as the foundation for the development of national standards in various countries. ✓ Constant actualization, updating and revision of the standard.	✓ Harmonized with ICB, PEB, OCB standards. ✓ Universality. Application of model regardless of the subject of company's activity. ✓ Possibility of assessment within	✓ Universality. The capability to integrate various project management methodologies and approaches (PRINCE2, PMBOK and others). ✓ Industry recognition. CMMI is well-known and widely adopted,	✓ Simplicity of instrumentarium. The model offers a simplified structure for self-assessment and rapid diagnostics of organization's PM maturity.	✓ Harmonized with PRINCE2 standard. ✓ Envisions the organization's context, specifics and peculiarity of activity. ✓ Ability to measure the effectiveness of critically important process areas. ✓ Encompasses an	✓ Universality. Wide range of applications regardless of the organization's field of activity. ✓ Integrity and systemacity. Both a comprehensive evaluation of project –program –portfolio	✓ Simplicity of model's application. ✓ Combination of team's professional skills, process approach and technical capabilities to increase the level of maturity and success of project activity.	✓ Allows for the assessment of sustainability integration in projects and project management, which ensures that organizations realize projects in line with global trends in	✓ Expanding the format of organizational project management maturity with a focus on a national perspective and projects of national importance.

Descriptor	TITLE OF THE PROJECT MANAGEMENT MATURITY MODEL								
	SPICE	**IPMA DELTA**	**CMMI**	**KPMMM**	**P3M3**	**OPM3**	**MINCE**	**SPM3**	**NPM3**
	✓ The capability for adaptation to the specific needs and context of an organization (aerospace, engineering, medicine) in line with best practices.	three dimensions with diagnostics of competencies people–projects – organization. ✓ Involves a holistic and comprehensive measurement of PM maturity level.	providing organizations with a standardized foundation for evaluation and enhancement of project business processes. ✓ Reliability of the model, time-tested with the option of certification.	✓ A detailed and comprehensive characteristics of each level, options for moving to the subsequent level, forecasting sources of risks, resistance, threats and barriers to level change and advancement. ✓ Concrete recommendations for transitioning to a higher level of maturity, offering a starting point for improvement initiatives. ✓ Classification of potential employee resistance during changes and introduction of various innovations.	estimation of project, program and portfolio management maturity.	system and a segmented assessment are feasible. ✓ Verification through benchmarking The theory is supported by results from industry's best practices. ✓ Expansion of internal reserves. The likelihood of identifying and developing the hidden abilities when applying the model. ✓ Agility. Adaptation to specific needs and organizational context enabling customizatio in accordance with different industries, sizes and project environments. ✓ Detailed review and examination of processes with the provision of a roadmap for transitioning from current to an advanced level of PM maturity.	✓ Phased approach for measuring maturity level.	sustainable development. ✓ Divides the diagnostics of maturity into two separate levels: project process and project product. ✓ Long-term value. Introduction of sustainable methods results in long-term benefits such as cost savings, improved reputation and stakeholders' credibility and trust.	✓ Offers a systematic framework for estimating the maturity of national project management with the following concepts: maturity levels, perspectives (knowledge areas), drivers and corresponding KPIs. ✓ Contributes to the promotion, advancement and support of project management skills in national, public and private organizations.
Weaknesses	• Restricted access to SPICE model (no open source for acquiring materials). • Accent on the evaluation of project business process maturity without diagnosing the	• Does not reflect the experience of applying benchmarking that affects the organization's upward movement on the maturity ladder.	• Reduced control because of transformation into a business project (loss of supervisor US Department of Defense) that exerts an influence on the adequacy and	• Not harmonized with project management standards. • Does not consider the experience of implementing best	• Resource-intensive, duration, complexity and labor-intensiveness of assessment procedures. • Does not take into account differences in processes across various maturity levels	• Complication. Difficulty of implementing and interpreting the model. • The utilization of digital technologies (IT products and automated	• Does not presuppose the estimation of program and portfolio management maturity.	• The model lacks comprehensiveness and systematic approach, failing to encompass the evaluation of program and portfolio maturity.	• The KPIs developed for maturity perspectives and drivers possess vague, approximat parameters. • Not supported and substantiated

Descriptor	TITLE OF THE PROJECT MANAGEMENT MATURITY MODEL								
	SPICE	**IPMA DELTA**	**CMMI**	**KPMMM**	**P3M3**	**OPM3**	**MINCE**	**SPM3**	**NPM3**
	organization's maturity.	• Limitation of the model due to excessive accent on aspects of human resources management that makes the assessment process subjective and exert an influence on the accuracy of results	utilization of the model. • Complexity, labor and resource intensity in acquiring and utilizing the model.	practices and benchmarking. • There is no comprehensive analysis and diagnostics of project management system (program, portfolio management). • Superficial and insufficient information. Limitations in terms of depth, customization and recommendations for advanced maturity levels.	and stages of organizational development. • Does not take into attention the functionality, roles and involvement of various management levels within the organization in project management.	management systems is not considered and provided. • A need for skilled qualified project personnel due to the practical adaptation of model to real-world conditions.		• Does not take into account the successful experienc (best practices) of companies.	by empirical research regarding the model's usage. • Does not include the maturity assessment of programs and portfolios.
Certification	+	Level A, B, C и D	Class A, B и C	-	+	-	-	-	-
Remark: compiled by author from sources [150-154]									

We suggest summarizing the results of the review study based on the following criteria:

1) *Base.* Maturity models are built and linked to PM bodies of knowledge (PMBOK, PRINCE2, OCB, ISO, etc.)

2) *Subjectivity.* The self-assessment nature of models can introduce subjectivity, leading to potential biases and inaccuracies in evaluating the organization's maturity level.

3) *Resources and time*. Implementing maturity models requires significant resources, effort, and time for data collection, analysis, and improvement initiatives, which is problematic for some organizations.

4) *Limited real-time analytics.* Maturity models are based on periodic assessments, that do not always reflect the effectiveness of project management in real time or do not allow for promt response to a dynamic project environment.

5) *Project business processes.* Maturity models primarily focus on process improvement, potentially overlooking other important aspects such as organizational culture, leadership and change management.

6) *Accent on levels.* The persistent desire to attain higher maturity levels limits the organization's ability to take into account the concrete needs of projects, internal project environment, tangible and intangible outcomes and benefits of projects, and most importantly, a correlation between increasing the level of PM maturity and profit growth.

In continuation of the study, we proceed to the empirical part. The PjM3 (P3M3) model has been chosen as the assessment tool for maturity. The object of this study is the activity of local or regional executive authorities (LAB of the Republic of Kazakhstan).

Data and information collection.

Primary data was collected based on a survey conducted in 2021. This provided an opportunity to form a picture reflecting the degree of involvement of local government stakeholders in project management across 17 regions of the Republic of Kazakhstan. The number of respondents was 172 people. The structure of questionnaire is divided in three sections, where the first is the respondent's profile (11 questions), the second is the need for professional PM personnel (6 questions) and the third is an assessment of organization's PM maturity (9 questions). In total, the questionnaire consists of 26 questions.

Results of the conducted research.

Respondents' profile. More than half (55%) of 172 respondents noted that project activity take up more than 50% of their working time. 61% of the workers have been with the company for five years or less, while the remaining portion has professional experience ranging from five to twenty years.

The demonstration of budget and project durations, for which the respondents served as executors, is presented in Figures 22 and 23. 83% of the respondents were involved in projects with a duration of 2 years or less. It is noteworthy that there were no projects with funding under 1 million tenge, while the majority of employees indicated that their project budgets were more than 100 million tenge.

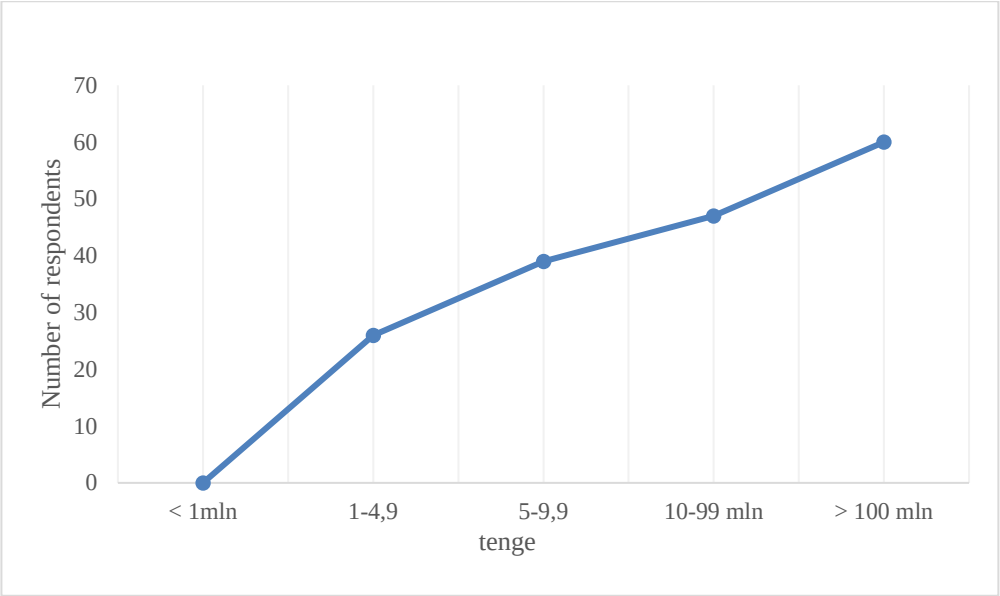


Figure 22 – Average budget of projects

Remark – compiled by author based on the conducted research

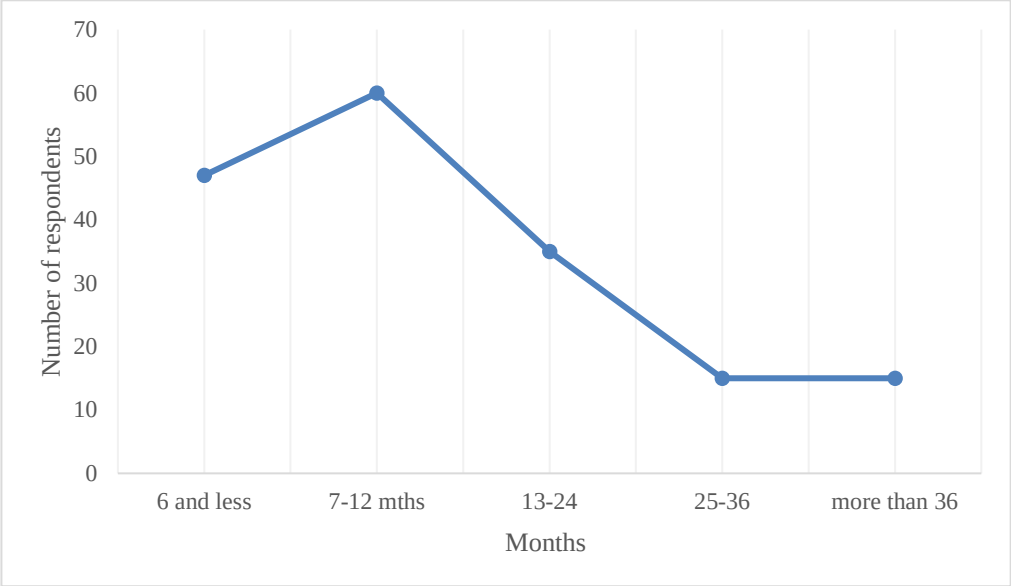


Figure 23 – Average duration of projects

Remark – compiled by author based on study

Regarding wages, 146 answerers had a salary of up to 200 thousand tenge. and 26 – up to 500 thousand tenge. Personnel structure by education levels: 133 have higher education and 39 have postgraduate education, incl. 38 Masters and 1 PhD. The survey showed that the largest percentage (79%) falls in the age category under 39 years. This characterizes the young composition of representatives in the executive authorities of the Republic of Kazakhstan. In addition, according to the survey's gender statistics, the number of men is slightly (6%) higher than the number of women.

The maximum share of respondents is from the southern (44% – Turkestan, Almaty oblast, Zhambyl, Almaty city, Kyzylorda and Shymkent city) and western

(28% – WKO, Mangystau, Aktobe and Atyrau) regions of the country. Breakdown by areas of LEB activity: 35% economics and entrepreneurship; 22% infrastructure development; 21% social security; 15% digitalization; 8% agriculture and natural resources.

Demand for professional cadre personnel in project management. According to the report, PMI Talent Gap: Ten-Year Employment Trends, Costs, and Global Implications 2021, the global economy will need 25 million new project professionals by 2030. To eliminate the deficit in project staff, an influx of 2,3 million PM will be required annually into project-oriented organizations [155].

Based on the survey, 161 out of 172 respondents noted the presence of project activities in the departments. At the same time, 72% of participants indicated the absence of a PM position. 109 employees responded that there is a need for PM specialists. The fourth question of questionnaire concerned the dynamics of the number of projects compared to the previous year. 53 employees reported a significant increase in projects in 2021, 50 indicated a slight increase in the number of projects, 41 out of 172 respondents stated that the number of projects remained unchanged compared to 2020, 28 answerers reported a decrease in the number of projects in 2021. On the last point about the minimum requirements for the qualifications of PM employees, the majority of respondents (70%) indicated a bachelor's degree and certification in the field of PM.

Assessing the PM maturity of regional executive bodies of RK. Currently, unlike the central government bodies of the Republic of Kazakhstan, there are no legal provisions for local executive bodies regarding the opening of project offices as independent structures or organizations. The functionality of project management in LEBs is performed by subdivisions of strategic analysis and management. The imperfection of regulatory framework and legal acts creates a series of restrictions and barriers for changing the organizational environment and establishing high-quality project offices at regional level.

For this reason, regions are compelled to seek their own opportunities to establish project offices. Thus, by Akim Order No. 108-ө dated November 2, 2020, the Project Office of the Mangystau Region was created, which in December 2021 became the winner of the republican competition «Qazaqstan Project Management Awards-2021» in the category «Best Project Office of the Year» and received the Presidential Award of the Republic of Kazakhstan «Altyn sapa».

According to the results of assessing the project management maturity of local executive bodies, the regions of Mangystau, Almaty and Aktobe have the highest level (Table 19).

Table 19. Rating of regions by level of PM maturity

№	Region	PM maturity level	Overall organizational capability maturity	Number of respondents
1.	Mangystau	3,57	3,42	16
2.	Almaty	3,34	3,28	16
3.	Aktobe	3,23	3,20	10
4.	Pavlodar	3,18	3,20	5
5.	Zhambyl	3,16	3,18	12
6.	Karaganda	2,95	3,00	8
7.	Atyrau	2,83	2,74	5
8.	Kyzylorda	2,80	2,71	7
9.	Kostanay	2,63	2,56	5
10.	East Kazakhstan	2,48	2,51	8
11.	North Kazakhstan	2,37	2,20	8
12.	Akmola	2,14	2,13	11
13.	Nur-Sultan	2,11	2,00	4
14.	Almaty city	1,82	1,72	8
15.	West Kazakhstan	1,72	1,63	17
16.	Shymkent	1,56	1,50	7
17.	Turkestan	1,21	1,14	25
Total		**2,54**	**2,48**	**172**
Remark – compiled by the author based on research results				

The consolidated evaluation of the current project management maturity level in Kazakhstan by region is presented in Table 20. The average maturity level was 2,53. According to the classification of maturity levels of PjM3 model, this indicator is between the second (Repeatable) and third (Defined) levels and testifies that there are separate project management processes with minimal standardization and a limited degree of consistency in project management. Projects are accomplished using in-house resources. However, there are no quantitative management metrics to track project progress, decision-making and forecasting, lessons learned and best practices are not documented. At the same time, advancing to the third level demonstrates the aspiration of local government structures to build and establish their own PM processes and procedures.

Table 20. Results of PM maturity assessment

	Question number of PjM3 model									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Statistical characteristics	**Organization description**	**Management control**	**Benefits management**	**Financial management**	**Stakeholder management**	**Risk management**	**Organizational Governance**	**Resources management**	**Overall organizational capability maturity**	**PM maturity level**
	Values									
Mean	2,55	2,72	2,49	2,73	2,30	2,34	2,57	2,61	2,48	2,53
Standard deviation	1,05	1,22	0,93	1,07	0,94	0,96	1,01	1,09	0,94	1,05
Median	3	2,5	2	3	2	2	2,5	3	2,5	2,5
Mode	3	2	3	3	2	2	3	3	2	-
Minimum	1	1	1	1	1	1	1	1	1	1
Maximum	5	5	4	5	5	4	5	5	5	4,78
Remark – compiled by the author based on research results										

The PjM3 methodology provides verification of the assessment results. The value obtained from answers to the ninth question is juxtaposed with the average level of maturity, which is calculated based on indicators of seven process areas (answers to questions 2-8). The maturity of the overall organizational capability to manage projects is determined by the ninth question. The values of the obtained estimates should be close (this confirms the objectivity of questionnaire). During the research, the obtained average values of answers to the ninth question – 2,48 and the level of PM maturity for seven process areas – 2,54. These values are relatively close. Additional verification is based on comparing the information from the ninth and first questions. If the value for the first question is lower than that of the ninth, then there is a high probability of scattering in the characteristics of PM maturity levels. The corresponding values are 2,48 and 2,55. This indicates low variation in average characteristics of PM maturity levels in seven process areas.

Based on study's results, more and less mature process areas were identified. Thus, the most mature are financial management and management control. The least mature are risk management and organizational governance. The normal distribution of data (respondents' answers) is confirmed by the closeness of average value of PM maturity (2,53) and its median (2,50).

An analysis of PM maturity assessment results in Kazakhstan determined the low efficiency of applying a project approach at the regional level. The average maturity level is 2,53 on a five-point scale. Nevertheless, there is interest and an active stance on building project infrastructure from regional authorities.

According to the survey, the leaders in PM maturity rating are Mangystau region – 3,57, Almaty region – 3,34, Aktobe region – 3,23.

Providing regional competitive advantages is possible through the use of advanced creative practices and technologies. The project approach, PM tools and methods, and maturity models are part of such technologies. To solve nationwide strategic tasks and effectively implement government programs and national projects, it is necessary to increase the maturity of PM at all levels of country management.

3 IMPROVEMENT OF REGIONAL DEVELOPMENT PROJECT MANAGEMENT MODERNIZATION MECHANISMS

3.1 A model for defining the regional competitiveness index, ensuring a balanced formation of the GCI of Kazakhstan

Today, the regions of Kazakhstan have ceased to be passive participants in the implementation of state policy. They show high enthusiasm and involvement in the materialization of project initiatives to increase their competitiveness and effectiveness of public administration. Improving and stabilizing the current state of regions, the positive dynamics of their development guarantees integrity, stability, reliability and directly affects the economy of the country as a whole.

Competitiveness is a complex multifaceted economic category, a single definition of which has not been established. Depending on the object of study, the broad concept of competitiveness is considered from different points of view and at different levels:

- country's competitiveness;
- regional competitiveness;
- sector competitiveness;
- enterprise competitiveness;
- product competitiveness.

One of the founders of the competitiveness's theory, Professor at Harvard Business School M. Porter, defines the primary goal at the macro level – ensuring a high and growing standard of living for its citizens through labor productivity and capital of the country. In his work «The Competitive Advantage of Nations», the author analyzes the reasons for a country's success in global competition and presents the «diamond of competitiveness» in the form of four systems of mutually influencing factors (Figure 24). The endogenous factors of diamond include factor conditions, related and supporting industries, demand conditions, strategy, structure and the nature of firm's rivalry. External factors comprise the government and the element of chance. Alterations in one of the factors result in modifications in the others.

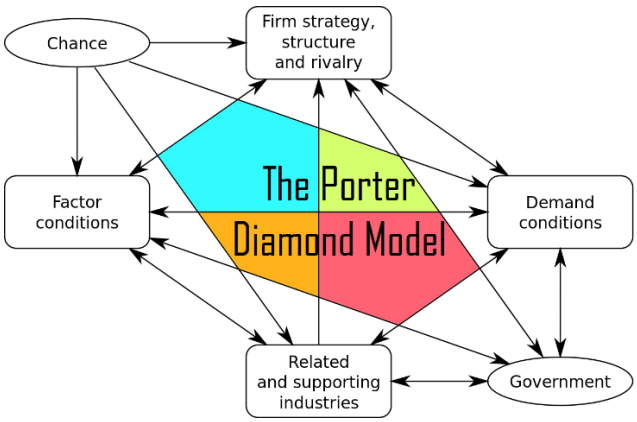


Figure 24 – Dimond of competitiveness
Remark – source [156]

In the present study, competitiveness is analyzed at two levels: country and regional. Meanwhile, country, global, international and national competitiveness will be understood as equivalent concepts.

Country competitiveness is a dynamic concept that requires constant adaptation to remain relevant in a rapidly changing global economy. As a rule, it is defined through the prism of world trade, competitive advantage, productivity, economic growth, population welfare and other measurable parameters.

Despite the presence of multiple interpretations, the term competitiveness is at the stage of development and refinement. Table 21 outlines the definitions of domestic and foreign academics and international organizations.

Table 21. Definitions of the term «country's competitiveness»

Interpretation and aspects of the term	**Source**
The ability to achieve sustainable economic growth and a higher increase in the welfare of the population than in other countries	[156]
Ability to compete in trade (especially in exports)	[157]
Possession of properties that provide advantages for the subject of economic competitions	[158]
The ability of a given country to compete sustainably in the international arena, taking into account in a long-term perspective the engagement of not only economic factors, but also the human development aspects, ecological sustainability elements as paramount constituents for high-level productivity and a prosperous society	[159]
National competitiveness, considering the specific developmental characteristics of the country: the quality of the competitive environment, discrepancies between domestic and global prices, taxation policy, and the level of solvent demand	[160]
The main indicator of competitiveness is export potential and its actual implementation	[161]
The aggregate of institutions, policies, and factors determining the level of productivity in a country	[162]
The extent to which a country, under conditions of free trade and fair market conditions, can produce goods and services that meet the demands of international markets, while concurrently sustaining and augmenting the real incomes of its population over the long term	[163]
The capacity of a nation to establish and maintain an environment geared towards creating and fostering a multitude of enterprises and the prosperity of the nation	[164]
A sustainable standard of living for a nation or region at the most minimal level of involuntary unemployment	[165]

Competitiveness is one of the important priorities for states of the entire. world. Over the past decades, more than 50 reports of international agencies have been published on research of country competitiveness, revision of assessment methodology (indices) and development of approaches for its enhancement.

The examination of issues of global competition has significantly advanced thanks to the annual reports of World Economic Forum (WEF) and International Institute for Management Development (IMD). They provide an aggregate estimate of countries' competitiveness: IMD International Competitiveness Index and WEF Global Competitiveness Index. Besides, other international institutions compile

specialized ratings, studying various aspects of countries' competitiveness, such as the quality of human capital, public administration, legal relations, innovation development, environmental problems and much more.

The most comprehensive set of indicators utilized for an assessment of competitiveness, is described in the methodology of the International Institute for Management Development (IMD). This approach aims to determine the level of competitiveness of 64 countries. The analysis combines quantitative and expert assessments. Evaluations are formulated through a combination of analyst opinions, management expertise, and surveys of the executive management of major enterprises. The quantitative assessment is based on the analysis of 336 indicators (including exchange rate), divided into 4 categories and 20 groups of criteria.

The *Economic performance* category contains the following groups of assessment criteria:

– International trade;
– Domestic economy;
– International investment;
– Employment;
– Prices.

The *Government Efficiency* category includes:

– Public finance;
– Tax policy;
– Institutional framework;
– Business legislation;
– Societal framework.

The *Business Efficiency* category encompasses:

– Productivity & efficiency;
– Labor market;
– Finance;
– Management practices;
– Attitudes & values.

The fourth category *Infrastructure* takes into account:

– Basic infrastructure;
– Technological infrastructure;
– Scientific infrastructure;
– Health & environment;
– Education.

The criteria have equal weight. The complex rating is formed taking into consideration the following ratios: 70% comprise statistical data and 30% compile expert judgments. The information base for the evaluation is provided by the data from organizations (World Bank, IMF, OECD, UN, WTO, etc.), as well as 57 partner institutions in different countries of the world. The composite index, on the basis of which countries are classified according to their level of competitiveness, is determined by summing the results of 20 subfactors.

Many countries take into account rating indicators to modernize state policy.

According to the 2023 report, Kazakhstan ranks 37th, a position was improved compared to 2022 (43rd place). Best position (32nd place) is observed in 2012, 2014 and 2017. Denmark occupies the first place. Following Denmark, the top 10 countries include Ireland, Switzerland, Singapore, the Netherlands, Taiwan (China), Hong Kong, Sweden, the USA and the UAE.

The IMD technique has some limitations and disadvantages. Due to the narrow range of index values, a change in the indicator by 0.001 can lead to the object shifting by several positions, which is practically unlikely. Moreover, there may be elements of subjectivity in expert judgments, which may also affect the ranking results.

The IMD technique has some limitations and disadvantages. Due to narrow range of index values, a change in the indicator by 0,001 can lead to shifts in the object's position by several ranks, which is statistically practically improbable. Furthermore, there may be elements of subjectivity in expert judgments, which may also affect the ranking results.

The Global Competitiveness Index (GCI) is a generally accepted means of assessing the competitiveness of national economies and has been applied since 2004. The methodology was developed for the World Economic Forum by Xavier Sala-i-Martin, Doctor of Economics, Professor of Development Economics at Columbia University.

GCI compose of 114 distinct components, distributes over 12 fundamental bases. The bases are combined into 4 groups of factors:

1. *Enabling environment*:
– Institutions;
– Infrastructure;
– ICT adoption;
– Macroeconomic stability.
2. *Human capital*:
– Health;
– Skills.
3. *Markets*:
– Product market;
– Labour market;
– Financial system;
– Market size.
4. *Innovation ecosystem*:
– Business dynamism;
– Innovation capability.

The aggregated GCI score is formed by summing the average scores for 12 main elements. In general, each of the 12 components accounts for 8,33% of 100. 30% (47 indicators) of the total sum comprise the results of survey of WEF enterprises top management. The survey allows obtaining unique information and data that are not available in statistical databases. In addition, leaders of organizations can provide the bettermost picture of real tendencies and needs of the market and industries where they realize their business ideas.

Regarding the gaps and limitations of the methodology, it is noteworthy to mention its orientation towards the Western management model. For developing countries where there is a high share of state participation and government involvement in major economic entities, the indicators will appear relatively low when assessing economic progress and competitiveness. Also, the risk pertaining to the subjectivity of expert opinions and changes in the composition of the expert panel influence the outcomes of the competitive advantage analysis.

Kazakhstan endeavors to secure a respectable position within the contemporary global economic system and enhance its standings in international rankings, including those of the WEF and IMD. The state plays a primary role in ensuring such progress. The objective of entering the top 30 most competitive countries in the world was set by the Head of State in 2012 [166].

Kazakhstan has been participating in international ratings since the mid-2000s, WEF (2005), IMD (2008). The figure 25 depicts dynamics of the country's position in the ranking of leading organizations.

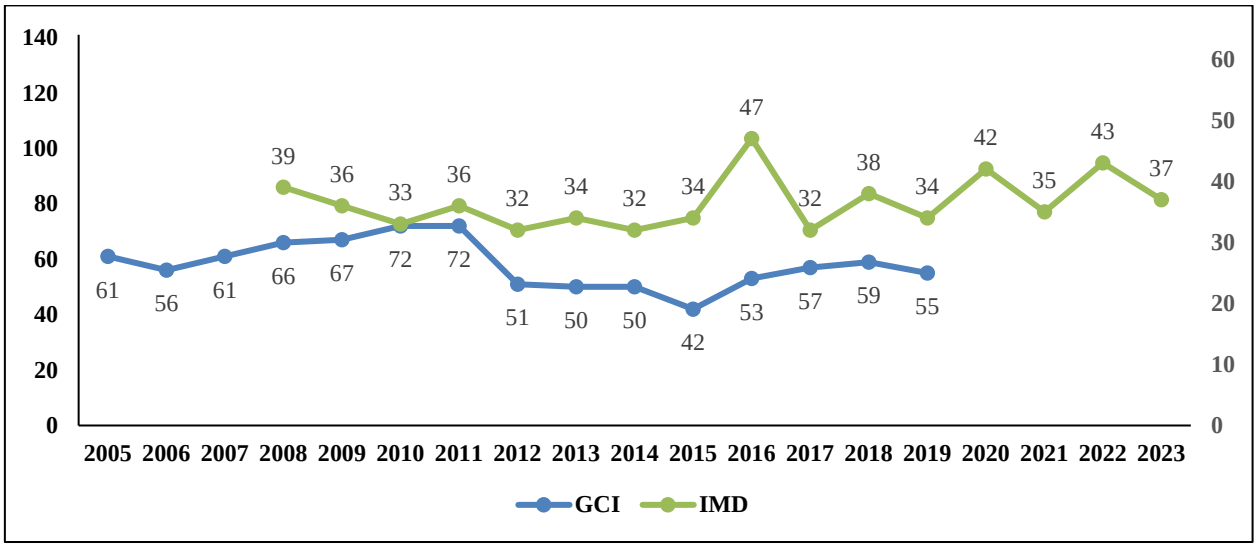


Figure 25 – Kazakhstan in international ratings GCI, IMD

Remark – compiled by author from data sources [167,168]

In Figure 25, it can be seen that the range of Kazakhstan's positions is confined to a small interval relative to the median values. Meanwhile, there are sharp fluctuations in 2011 – 2012, an increase in positions by 21 points, in 2015 – 2016 a decline of 11 points (GCI) and 13 points (IMD). The best results in the country ranking were achieved in 2012, 2014, 2017 (32nd place, IMD) and 2015 (42nd place, GCI).

To improve and long-term sustain Kazakhstan's position in global rankings, enhance the nation's welfare, conditions and quality of life, it is important to take into account the role of the country's regions, because the regional determines the country. The position of a country at the macro level depends on the development of territories that are within its composition.

Regional competitiveness is a multidimensional economic concept that has a number of interrelated components and influencing factors. An expert group of the

European Commission has developed a «regional competitiveness hat» model. The hat's cylinder has layers: indicators of regional economic activity (GRP/per person worked, number of employed); regional production (regional productivity, profitability, market shares); the regional throughput system (structure, specialization, types of firms, ownership, investments) and determinants of regional competitiveness. The brim of the hat is concentric rings with sectors. The first ring includes the basic factors of production: land, capital and labor. The second ring contains the elements: basic infrastructure and accessibility, human resources and productive environment. The brim of the model is closed by factors of regional or sectoral competitiveness, namely institutions, technology, innovativeness, entrepreneurship, internationalisation, social capital, knowledge infrastructure, culture, demography and migration, quality of place, environment (Figure 26).

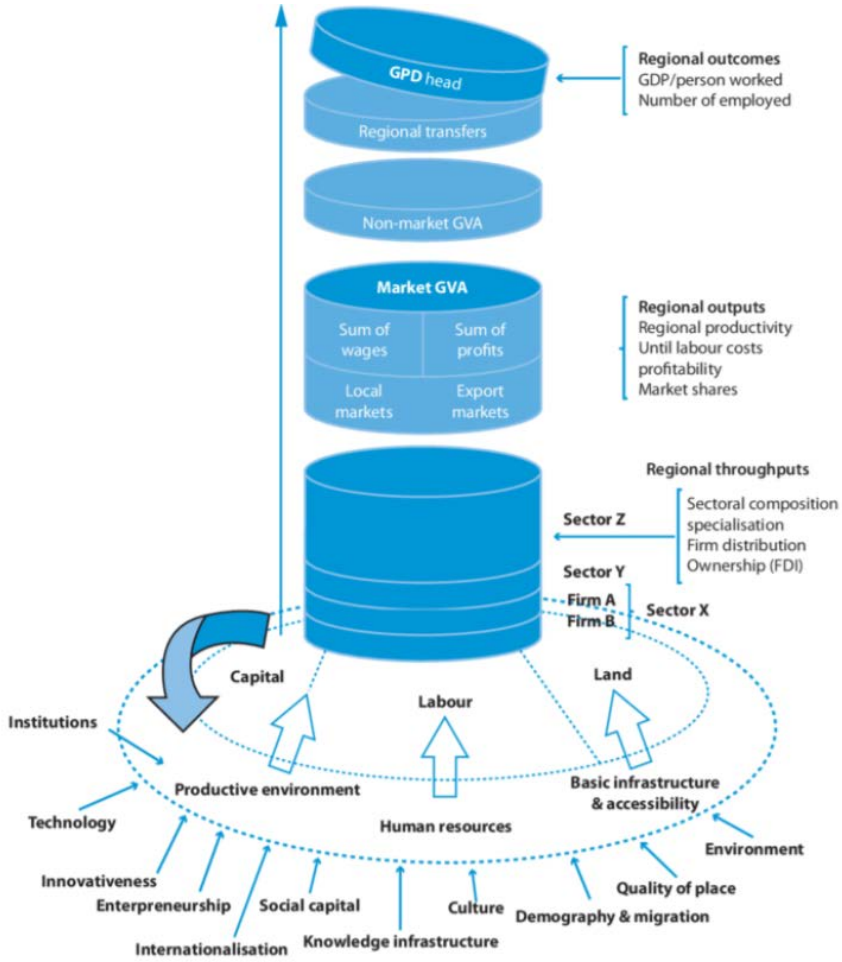


Figure 26 – The «regional competitiveness hat» model

Remark – source [169]

Institutes from various countries around the world are engaged in the development of methodologies for assessing regional competitiveness. The most widely known methodologies were created by experts from the European Commission, Asia Competitiveness Institute (ACI), UBS bank, Cardiff University, JSC «Institute of Economic Research», Institute of Economics of the Science Committee of the Ministry

of Science and Higher Education of the Republic of Kazakhstan, Ministry of Economic Development of the Russian Federation, and others.

The European Commission's conceptual model contains a definition of regional competitiveness: «The ability of a region to offer an attractive environment for firms and residents to live and work» [170]. The Regional Competitiveness Index (RCI) is based on the GCI methodology and includes 68 indicators, 48 of which reflect regional aspects of development. These indicators comprise 11 different groups and 3 sub-indexes, transitioning from Basic sub-index to Innovation sub-index through Efficiency sub-index:

1. *Basic sub-index*:
1.1 Institutions;
1.2 Macroeconomic stability;
1.3 Infrastructure;
1.4 Health;
1.5 Basic education.
2. *Efficiency sub-index*:
2.1 Higher education;
2.2 Labour market efficiency;
2.3 Market size.
3. *Innovation sub-index*:
3.1 Technological readiness;
3.2 Business sophistication;
3.3 Innovation.

To test and verify the reliability and consistency of each indicator, the Principal Component Analysis (PCA) method is employed.

The European Regional Competitiveness Index (RCI) is a distinctive index published triennially on behalf of the European Commission. Given that the European Union is not a state, the RCI reflects the level of regional competitiveness of its member countries, EU Member States.

Analysis and evaluation of the UK regions competitiveness (UKCI) is carried out by Cardiff University and Nottingham Trent University. The first report was published in 2000.

Because measuring progress cannot be based on just single variable (GDP, productivity), the comprehensive UKCI measure takes into account a range of input, output and outcome factors. Economic, political, social and cultural variables are fundamental constituents of this index.

The 3-factor model (UKCI) for diagnosing competitiveness is presented in Figure 27.

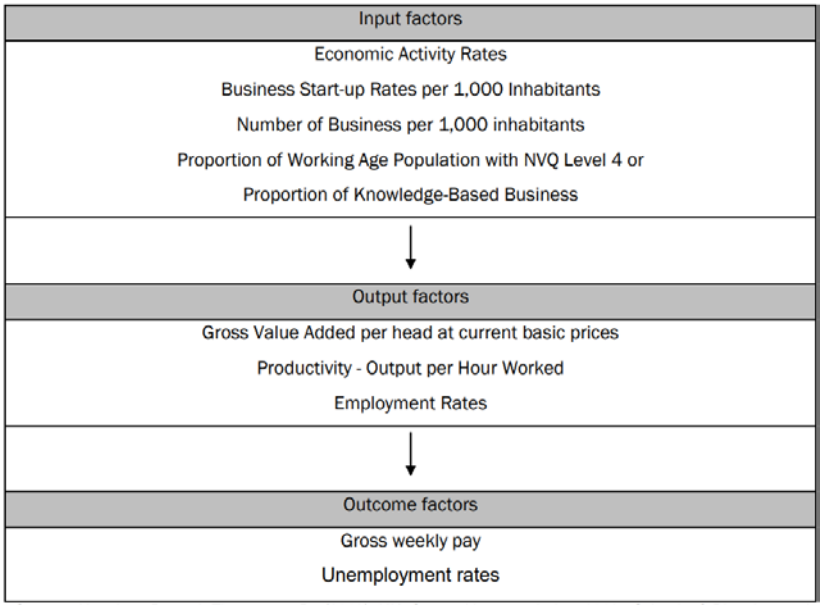


Figure 27 – The 3 Factor Model Underlying the UK Local Competitiveness Index

Remark – source [171]

When calculating the index for each indicator, the national average value is taken as equal to 100. Separate ranges demonstrate both asymmetric and extensive distribution. This results in variables exerting a disproportionaly significant influence on the overall composite index. In order to mitigate extreme values of indicators and their impact on the final score, the logarithmic form of each variable is used. It is worth noting that the initial values are no more authentic or «natural» than the transformed ones. To illustrate the degree of gap in regional competitiveness, the aggregate scores undergo «antilog transformation» through exponential conversion.

The UKCI methodology provides four scenario forecasts for the growth of VAT per head at current basic prices. Based on data from previous periods, forecasting of potential future development scenarios is conducted, as for instance, the impact on national and global economy of the Brexit consequences, COVID-19 and cost of living crises challenges.

Another regional competitiveness model, Cantonal Competitiveness Indicator (CCI), is utilized to evaluate the national territorial units (cantons) of Switzerland. The largest Swiss financial holding UBS Group AG publishes biennially an information concerning classification of the country's regions.

The CCI applies the scale method to rank regions within one state, where the highest score is 100 points. The model encompasses 56 competitiveness indicators, divided into 8 directions (pillars): economic structure, innovation, human capital, labor market, accessibility, catchment area, cost environment and government finances.

During the assessment, the indicators may have both a positive and negative impact on the cantons' competitiveness. For example, a parameter of the number of employees per inhabitant in public administrations has a negative effect, while «export diversification» is seen as having a favorable influence.

In the CCI methodology, indicators have unequal weights due to the varying number of indicators in each of the 8 pillars. The final score of the region is calculated based on the average value for eight groups of indicators. Besides, the competitiveness profile of each of the 26 cantons is compared with the median canton (reference canton), for which the average values across all 8 fundamental bases are determined (Figure 28).

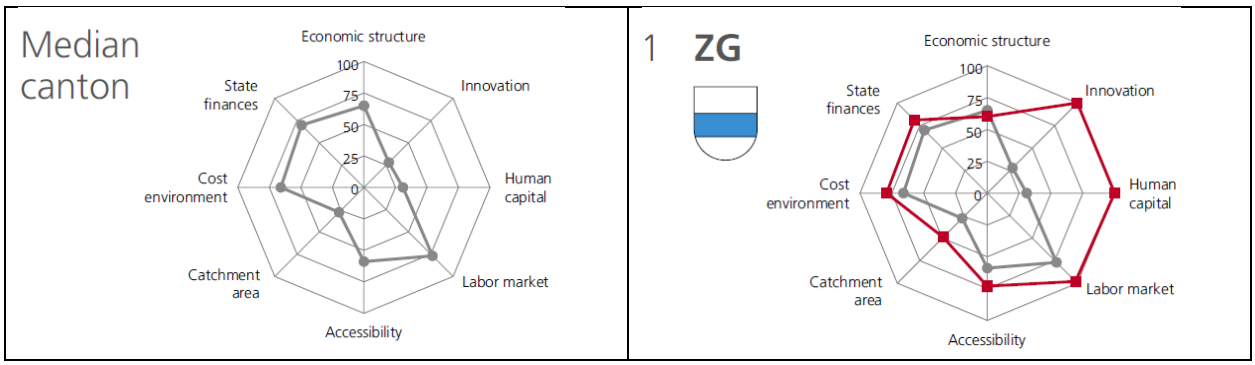


Figure 28 – Comparison of the competitiveness profile of the Zug canton with the median canton

Remark – source [172]

Among the limitations of the CCI methodology are the lack of evidence-based scientific base. All fundamental principles are based on theoretical postulates that have no formal connection with existing academic literature. The validity of these assumptions has not been tested or supported by the outcomes of other prior studies.

Based on the analysis of approaches to investigating global and regional competitiveness, we elaborated the methodology for assessing regional competitiveness level.

The essential purpose of the assessment is to search and ascertain factors influencing regional development, as well as to identify potential perspectives for improving the current state through more active utilization of competitive opportunities to increase the welfare of the country's population.

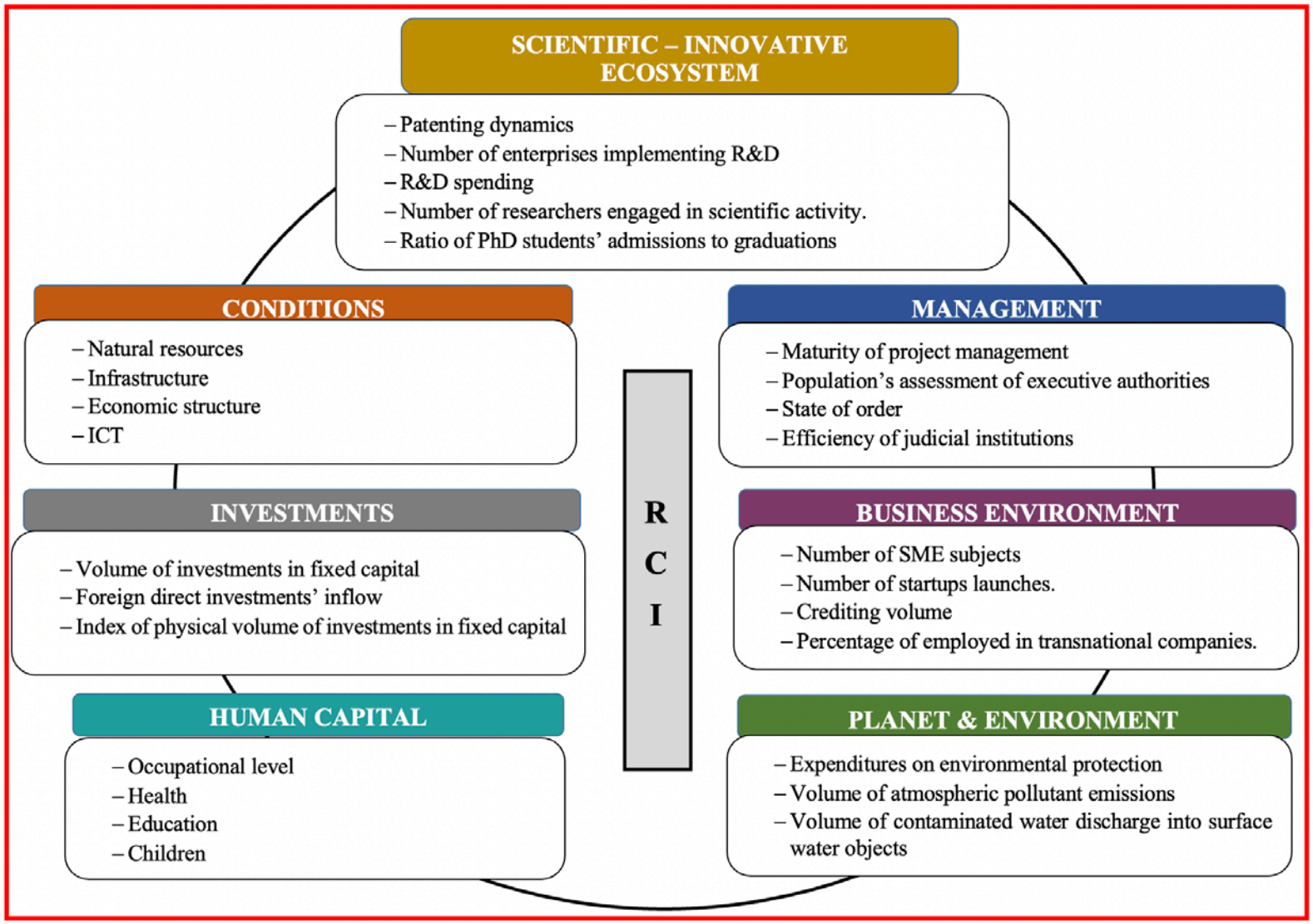


Figure 29 – Model for measuring regional competitiveness

Remark – author generated

Part of the RCI indicators is derived from statistical data, while specific values are obtained through specialized computations.

In addition, we will provide explanations for separate complex RCI indicators.

Conditions

Natural resources include:

– land (territorial area in k. km^2);
– farming (yield; area k.ha.; agricultural output, mln.tg.);
– mineral deposits (natural resource potential);
– forest resources (total timber stock, mln. m^3);
– water resources (volume of annually renewable water resources; water intake from water sources, mln. m^3);
– tourist resources (number of accommodation places; number of serviced visitors; volume of paid services provided by hotels and similar accommodation facilities, mln. USD).

Infrastructure contains:

– fixed assets (value);
– transport (freight turnover; passenger turnover; length of railway lines; length of roads);
– energy (energy security; the proportion of electricity produced by renewable energy sources in the total electricity production);

Economic structure:

– GRP per capita;
– volume of industrial production;
– average income;
– average monthly salary;
– subsistence level;
– inequality coefficient Gini;
– migration of population;
– export value.

Information and communication technologies:

– percentage of households with access to the Internet;
– expenditures on ICT;
– digital literacy of population.

Human capital:

– occupational level (economically active population);
– health (average life expectancy; number of physicians; incidence rate, overall mortality rate);
– education (number of educational institutions; graduation of students from higher education organizations; number of teaching personnel; average rankings of universities);
– children (number of births, population of children aged 0 to 17 years.).

Management

– maturity of project management (maturity level based on the selected assessment model);

– population's assessment of executive authorities;

– state of order (number of registered crimes per 10,000 population);

– efficiency of judicial institutions (judicial independence; judicial system accessibility; swift, fair, and thorough case examination; strict adherence to procedural form).

Comparative analysis of indicators, which are expected to increase in the most favorable scenario, is feasible in case of their compatibility. Comparability and commensurability of indicators is ensured by dividing the current value by the highest indicator in the reference region. The following calculation method is employed:

$$x_{ij} = \frac{\alpha}{max_{\alpha_{ij}}}$$

where:

x_{ij} – normalized value of indicator for i region;

α_{ij} – current value of indicator of the concrete region;

$max_{\alpha_{ij}}$ – highest value of the indicator (reference region).

The final value of specific indicators for a separate element of competitiveness is determined by the following formula:

$$K_n = \sum_{j=1}^{n} x_{ij}/n$$

where:

n – number of indicators.

Specific indicators that constitute the competitiveness of region and are applied to calculate the overall index are exhibited in Figure 29. Analysis of given indicators will provide an opportunity to define the competitiveness level of the studied object and identify factors that promote or hinder its development and progress.

Based on calculations of specific indicators, an overall regional competitiveness index is formed:

$$RCI = \sqrt[7]{K_{sci} + K_{cond} + K_{inv} + K_{hum} + K_{mng} + K_{bsn} + K_{plnt}}$$

Following the calculation results, the obtained index allows performing classification and ranking the regions according to their level of competitiveness within 4 categories, the criteria for which are given in Table 22.

Table 22. Grouping regions by level of competitiveness

№	Group ranges	Competitiveness level description
1	$0{,}75 < RCI \leq 1$	High level, a region demonstrates indicators close to parameters of reference region.
2	$0{,}5 < RCI \leq 0{,}75$	Moderate level, an oblast possess corresponding competitive advantages that are not fully activated.
3	$0{,}25 < RCI \leq 0{,}5$	Below the moderate, a territory has minimal and small competitive potential.
4	$0 < RCI \leq 0{,}25$	Low (crisis, problematic) competitiveness level
Remark – compiled by the author		

Owing to the analysis, competitiveness factors are identified that could facilitate or interfere the growth of region. Proceeding from the derived data, strategies are developed to actively use the region's competitive advantages and minimize or eliminate negative factors.

The proposed methodology for assessing regional competitiveness has the following advantages:

1) availability of information resources for analysis (the research is based on open official statistical data);

2) a holistic and multidimensional approach to examine such multifaceted phenomenon as regional competitiveness;

3) during the analysis process, the factual results of regions are taken into consideration;

4) the resulting assessment is comparative in nature in determining the position of region in relation to benchmark (reference) region;

5) a set of assessment criteria (separate competitiveness indicators) allows identifying the best reserves for improving competitive status;

6) the calculation procedure does not require large expenses.

The investigation of regional competitiveness is built on a concrete set of criteria that allows measuring it quantitatively and ascertaining the factors influencing the region's position in comparison with other objects. The proposed approach provides a complex characteristics of the competitive ability of the region, as well as specific aspects. A detailed analysis of the constituents of competitive potential gives an opportunity to reveal barriers to regional development that need to be weakened, minimized and eliminated.

The practical application of regional competitiveness assessment consists in the assumption that its results and conclusions can serve as a foundation for informational support of managerial decisions by local authorities. The implementation of these

decisions should contribute to the enhancement of the region's economic and social development.

3.2 Ways to improve the efficiency of regional project management

Understanding the importance of the role of competitiveness, regions strive to find ways and creative approaches to improve their positions, because their level of development directly affects the economy of the country as a whole.

In January 2020, the Initiatives of the President of the Republic of Kazakhstan K.K.Tokayev, announced at an extended Government Meeting, became the basis for a large-scale reform of public administration with the spread of project approach within government bodies.

For the effective realization of key directions of state policy in the country, it is necessary to introduce the principles of project management at all levels of management: republican, regional and local.

The prerequisites for the introduction of project management in the activity of government bodies of Kazakhstan are the next problems:

- volatility of the political and economic situation;
- implementation of not always prioritized projects;
- deficit of development ideas;
- ineffective interdepartmental interaction at the center and locally;
- non-fulfillment of objectives and key performance indicators;
- breach of deadlines and budget non-compliance;
- suboptimal resource allocation.

Let us identify the sources of administration and management problems.

1. System of management:

- absence of functional integration;
- conflicts at the intersection of various functions;
- insufficient systematic organization of interdepartmental interactions and communications;
- diffusion of responsibility and inefficiency in the performance of distributed teams from different structures.

2. Value of the decision being made:

- not the best decisions are made because of the lack of transparent, relevant and reliable information on projects' status;
- focus on eliminating problems instead of preventing them;
- primary accent is on the allocation of financial resources rather than on the fulfillment of strategic objectives and tasks.

3. Operativity of decision-making:

- multiple approvals among different participants in interconnected processes;

– lack of motivation among employees in the conditions of limited time and resources;

– heads of departments are overloaded by executive-level tasks.

4. Characteristics of Head's leadership:

– differences in the perception of goals and priorities;

– insufficiency of funds and tools for the assessment of project management competencies and skills.

In Kazakhstan, the application of project management is mainly associated with national projects, government programs and their implementation. This required a radical restructuring of management system (Figure 29).

Instruction of the President of the Republic of Kazakhstan – П 3.33 of the Extended Government Meeting dated 24.01.2020:

Ensure the implementation of modern project management approaches to increase the efficiency of interaction between central and local executive bodies and development institutions.

№	National projects	Number of directions	Number of tasks	Budget, trillions. tenge
1	High-quality and accessible healthcare for every citizen «Healthy Nation»	4	9	3,6
2	High-quality education «Educated nation».	4	5	1,9
3	National Spiritual Revival	3	7	0,119
4	Technological breakthrough through digitalization, science, and innovations	10	26	2,2
5	Development of entrepreneurship	4	10	8,5
6	«Strong regions – country's development driver»	2	4	7,6
7	Sustainable economic growth aimed at improving the welfare of Kazakhstanis.	5	6	15,9
8	Green Kazakhstan	4	11	1,4
9	Development of agricultural complex	3	4	4,1
10	Safe Country	-	-	-
				45,3

Distribution of responsibility for achieving target indicators to central and regional levels

There appears a need of applying project management tools and techniques at all levels of the administrative arrangement.

Figure 29 – Impact of the President's instruction on the development of project activity in the government sphere

Remark – compiled by the author

The National PM system includes:

– organizational structures of government authorities (Office for monitoring the realization of national projects, project offices);

– regulatory, legal and methodological basis on PM;

– professional development programs based on educational institutions and professional associations;

– single informational database.

The following legislative acts and regulatory documents serve as the foundation and framework for the formation and development of project management system:

1. Administrative procedural process code (Article 43-1);

2. Rules of the implementation of project management (Decree of the Government of the Republic of Kazakhstan No. 358, dated May 31, 2021,) (hereinafter referred to as the Rules);

3. Decree of the Government of the Republic of Kazakhstan «On approval of the State Planning System» No. 790, dated November 29, 2017;

4. Concept for the development of public administration in the Republic of Kazakhstan until 2030 [173];

5. Order of the Ministry of National Economy «On approval of the Type reglament for project management of government bodies» No. 57, dated June 8, 2021;

6. Joint order of the Minister of National Economy of the Republic of Kazakhstan No. 79, dated August 11, 2021 and the Chairman of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan No. 1, dated August 12, 2021, «On some issues of national projects»;

7. Order of the Agency of the Republic of Kazakhstan for Civil Service Affairs No. 138, dated August 11, 2021 [174].

The project functioning of state bodies is realized in a unified information base and is divided into:

– **portfolio management** at the level of the Executive Office of the President of RK and the Government (formation of portfolios of national priorities);

– **program management** at the level of government bodies (realization of programs, national projects, regional development plans and other program documents);

– **project management** at the level of execution of certain projects through the formation of project teams and the implementation of their work and activity.

In February 2021, by ordinance of the Prime Minister No. 37-r, the Office for monitoring the realization of national projects (National Project Office) was established. A distinctive characteristic of the Office was its organization not as an autonomous government body or a separate unit, but according to the principle of a matrix organizational structure in the Project Management Center under the Office of the Prime Minister of the Republic of Kazakhstan and the Project Management Department of the Ministry of National Economy of the Republic of Kazakhstan, in conjunction with other structural units of government agencies and organizations, authorized to manage and perform national projects.

In parallel, to automate initial analytics, forecast various development scenarios, track potential risks of non-fulfillment of national targets, as well as for digitalization and optimization of work processes of government agencies, the Office of Digital Government was opened, which united the Center for Digital Transformation, the Unified Situation Center of the RSE on the REM «Digital Government Support Center» MDDIAI RK (DGSC) and the National Project Office.

The matrix organization of the National Project Office consists of:

– Presidential Project Office (Delivery Unit);

– Center for monitoring and managing projects, DGSC;

– Center for project management development in public administration of the Academy of Public Administration under the President of the Republic of Kazakhstan;

– Project offices of government bodies.

Other divisions of government institutions and organizations involved in the implementation of national projects and other documents within the frames of state planning system, as well as international and national highly qualified experts in the field of project management can be attracted for working with the National Project Office (NPO).

In addition to NPO, project offices of government agencies and various organizations, that are involved in the national projects' implementation, country and regional development strategies and other programs, are key components of the organizational infrastructure for project management at the NSPM level.

In 2021, project offices have been established in each central and regional executive body. As of December 1, 2021, akimats of 17 regions, 18 ministries, as well as 4 agencies (Anti-corruption Agency, Agency for Protection and Development of Competition, Agency for Civil Service Affairs), Supreme court, Prosecutor General's Office and Presidential Administration have formed project offices within the frames of the «Hearing State» initiative.

According to the approved Rules of the implementation of project management, adopted by Decree of the Government of the Republic of Kazakhstan dated May 31, 2021, No. 358, the Project Office Head, Chief Manager, Administrator, as well as three employees of the group for the implementation of basic direction for each of directions. However, these requirements are not always adhered to.

As of December 1, 2021, out of 17 regional project offices, only 10 have the full-time Heads. In the remaining 7 regions, the Heads combine their duties with other work. Considering central government bodies, out of 24 created project offices, only 8 have leaders engaged on a permanent basis.

The Mangistau region project office is fully staffed and serves as a model for other regional structures. The number of full-time employees is 12 people. This is reflected in the effectiveness of project work and many other indicators, which allows the region to reach the forefront both organizationally and in terms of concrete results.

Specifically, within the context of implementing the pre-election program of the Amanat Party, Mangystau region registered 1,885 projects in ISPM, divided by districts and settlements. In comparison, Atyrau region, that does not have a full-time head of the Project Office, registered only 546 projects.

Project offices of government agencies assume the presence of 12 to 24 staff units (Figure 30). However, the problem of personnel deficit in the central and local executive bodies of the Republic of Kazakhstan remains relevant. Based on the results of an assessment of the maturity of PM in government agencies, conducted by the JSC Institute of Economic Research, as of April 15, 2022, the number of full-time employees in project offices is 303 employees (45%) of the planned number (672 people), namely 113 CEB (plan 356), LEB 190 (plan 316) [175]. It is worth noting that

according to the accepted methodology, the project office staff should be composed of full-time employees who are exempt from other roles and responsibilities.

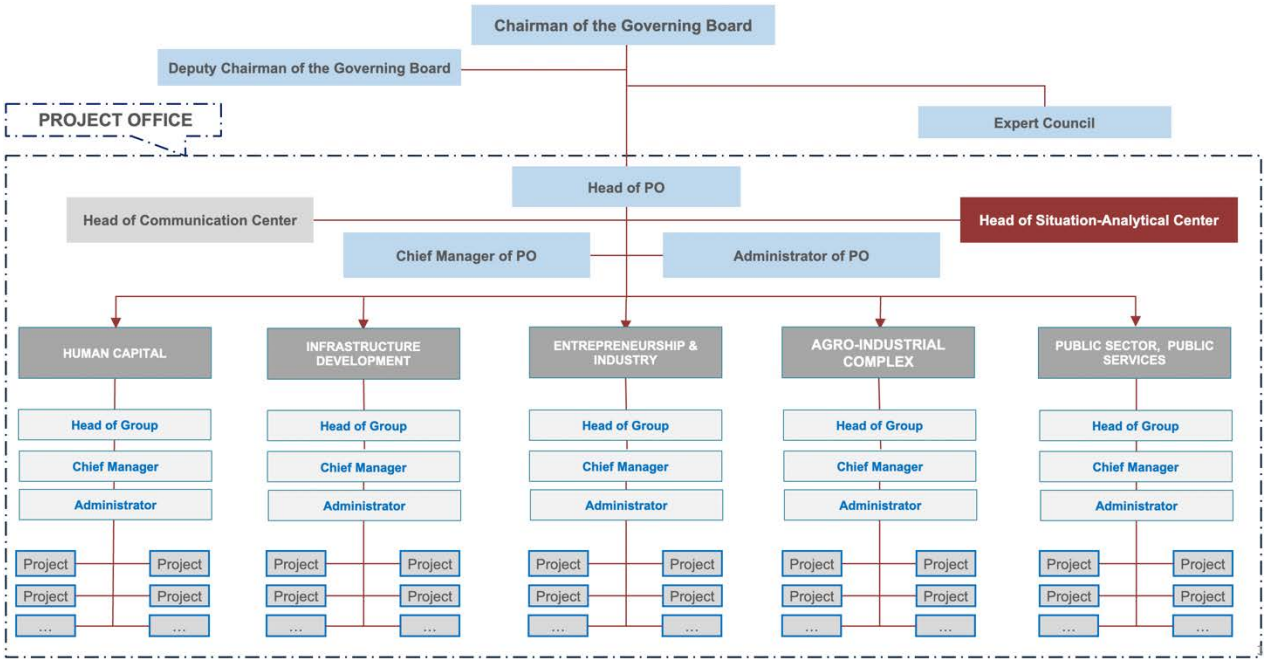


Figure 30 – The typical structure of a project management office for local executive bodies.

Remark – compiled by the author

World experience shows that project offices are a necessary and important constitutient of the entire project management ecosystem. According to Deloitte's Global Project Management Trends 2022 survey of 630 project management professionals, 9% of respondents emphasize the critical importance of the project management office to their operations. In addition, 54% of participants indicate the presence of a centralized office for project management. The company notes that in contemporary conditions, when digitalization of all spheres of the economy plays a major role, traditional project offices, known as «iron triangles», no longer meet modern requirements. In this context, the accent is made on agile project offices, which promote customer centricity and align with key success indicators within the business strategy [176]. McKinsey research confirms that corporations are increasingly focusing on competencies such as «project management», «critical thinking and decision making» (advanced cognitive skills category), and «leadership and managing others» (social-emotional skills category) [177].

The Project Office (PO) is the unit responsible for the ongoing support of the consistent application of selection criteria, standards and processes; training and overall assistance to project managers; and continuous improvement and utilization of best practices and benchmarking.

The software performs the following functions: methodological, controlling, expert, supporting and managerial. Thus, the services that the software can provide include the following:

PO performs the next functions: methodological, controlling, expert, supporting and managerial. Thus, the services that the PO can provide include the following:

– creation and maintenance of internal project management information system;

– recruitment and selection of project managers;

– establishment of standardized methodologies for project planning and reporting;

– training of personnel on project management tools and techniques;

– audit of current and recently completed projects;

– development of complex risk management programs;

– provision of consulting and mentoring services in project management;

– maintenance of internal PM library containing important documents such as project plans, funding documents, test plans, audit reports, etc.;

– establishment and comparison of PM best practices;

– management and monitoring of project portfolio within the organization;

In Kazakhstan, currently the PM information system «Easy-Project KZ-2050» operates on the basis of portal of Digital Government Office. Consequently, the assessment of project offices' effectiveness in the context of operational plans implementation is based on an analysis of ISPM application and determination of project offices' contribution to the achievement of set goals.

Besides, NPO has developed a special rating for project management maturity of government structures, which evaluates:

1) conducting a seminar-meeting with active members of governmental body involving the participation of the chief executive;

2) availability of a Program Steering Committee;

3) presence of an updated Regulation (Reglament) on project activities of the government body;

4) order establishing the personal responsibility of the heads of the Basic Directions, including the Standard Basic Direction.

5) assignment of the Project Office Head's role on a full-time basis;

6) staffing the Project Office with full-time employees;

7) conducting a SCRUM meeting by the head of Project Office with the implementation groups of Programs' Basic Directions and Project Groups;

8) participation of the Project Office Head in weekly SCRUM meetings with NPO;

9) conducting weekly meetings of the Program Steering Committee with the registration of assignments and instructions in the ISPM as tasks for the Project Office of government body;

10) professional competencies of civil servants in the field of project management (certification of civil servants: IPMA, PMI, PRINCE2, ISO-21500, etc., plan – 15% of the government body's staff complement);

11) development of a Priority Goals Map;

12) elaboration of a Project and Initiatives (actions, measures) Map for the program (for each program);

13) provision to the program/basic direction manager and to the Office of weekly information and updates on the progress of program implementation.

14) presence in the ISPM of the government agency's project architecture, which includes all components of the government agency's portfolio of programs and projects (up to the level of Project Groups).

According to the results of an assessment, as of 2022, the leading positions were occupied by the akimats of Pavlodar region – 14,5 points, Mangystau region –14,3 points and Zhambyl region – 14,0 points, among the Central Government: Ministry of Culture and Sport – 13,1 points, Ministry of Emergency Situations - 13,1 points, Ministry of Internal Affairs – 12,5 points. The average score for local executive bodies across the country is 9,8 points, while for central government bodies it is 8,4 points.

Despite the taken measures that are oriented toward improving the activity on the realization of approved state programs and national projects, there are a number of systemic problems and difficulties in the work of government agencies (Table 22).

Table 22 – Peculiarities of the application of project management principles in government executive authorities and administrative bodies

BENEFITS	**COMPLEXITIES**
Precise definition of goals and adequate response to changes and deviations from norms to achieve project success within limited budget and time	*Problem is in the clear definition and proper formulation of the project's goals and outcomes.*
Allowability of urgent adjustments to goals, objectives, scope of work and, if necessary, project tactics	*Impossibility of timely redistribution of budget funds due to the linking of implementation stages and schedules to the financial year and budget cycle*
Distribution of responsibility between all participants for the realization of project	*Imperfect project management organizational structure*
Planning with consideration of existing risks and opportunities	*Problem of planning and risk management. Not fully developed strategy and project implementation plan*
Option for forecasting time, deadlines, results, and the opportunity for optimization of solutions to project tasks	*Difficulty in forming project KPIs (discrepancies in plan-actual results)*
Increase of employee performance and efficiency through productive project management methods	*Incompleteness and fragmentation of information systems, which complicates data exchange and affects productivity*

BENEFITS	COMPLEXITIES
Opportunity for adaptation of business management models, creation of a corporate culture and work style of government agencies	*Low qualifications of personnel and resistance to change*
Enhancement of the proactivity and transparency of government bodies	*Problem of introducing public administration with elements of e-government*
Creation of a favorable administrative and economic microclimate	*Use of semi-professional project documentation. Updating and synchronizing project documentation*
Enhancement of intellectual investments, including licensing, scientific and technical products, and training of specialized managers	*Insufficiency, and in some cases, absence of authority*
Opportunity for easy integration of novices and partners into the project. *Increased efficiency of communications between project stakeholders.*	*Disunity of views, interests and values of project participants*
Rise of the efficiency of inter- and intra-departmental interaction, communication of central executive bodies, local executive bodies with business structures at all levels	*Lack of coordination and imbalance of functions and actions of different structures and departments at the central and regional levels*
Establishment of a succession system for actions in response to changes in the external and internal environment.	*Formal approach to the integration of project management*
Application of modern project management methods and tools saves about 20–30% of time and 15–20% of resources spent on the realization of programs and projects	*Execution of established regulatory and legal documents of project management*
Remark – compiled by the author	

The resolution of these issues, as well as the enhancement of the efficiency of government spending in the accomplishment of state programs and national projects, is envisaged in proper application of tools and methods of project activity.

In turn, the real effect from this initiative can only be obtained through a meaningful and consistent transition to the utilization of project management tools, which excludes the formal execution of organizational measures.

Kazakhstan, which has a diverse regional potential, faces the task of optimizing project management at the local level. In conditions of dynamic changes in the economic climate and the need to quickly adapt to new challenges, the project approach is an effective management tool.

Suggested ways to improve the efficiency of government project management in the regions:

Education, training and certification: Enhancement of the professional competencies of project office employees in accordance with international standards of project management. Completion of certification programs such as PMP (Project Management Professional), IPMA, PRINCE2, etc.

Digitalization of processes: Introduction of modern IT solutions and platforms to automate project management processes. Using systems such as ERP or SAP to coordinate resources between different structural units.

Risk assessment: Regular analysis and accounting of potential risks associated with the accomplishment of projects, and the development of strategies to minimize them.

Regular monitoring and control: Implementation of real-time project execution monitoring and control systems. This will enable timely identification of issues and adjustment of the course of project implementation.

Reporting: Introduction of standardized reporting methods will facilitate the process of monitoring and control over project execution.

Public Engagement: Involving the community in decision-making processes, which will help to consider the interests of the local population and make projects more adapted to real conditions.

Interagency Collaboration: Enhancing coordination among various governmental bodies at regional and central levels for collaborative work on projects.

Transparency: Ensuring the openness of project information to attract a greater number of external investors and enable public monitoring of project execution.

Stimulation of regional initiatives: Support for local initiatives and projects, particularly in remote regions, contributes to diversity and takes into account regional specificities in the implementation of national projects.

Creation of regional project management centers: The creation of such centers will allow concentrating experts, resources and methodologies for the realization of key projects in the region.

Creation of a nationwide platform for the exchange of experience: Organizing conferences, seminars, events and master classes on the topic of project management for the exchange of experience and best practices between regions will be an important step towards creating a unified project management system in the country.

Continuous improvement: Conducting retrospectives, analyzing successful and unsuccessful practices, participating in professional communities and organizations will help to improve project management practices at the regional level.

Public – Private Partnerships: Collaboration between the public and private sectors can ensure a strong impetus to regional development. Government agencies can act as project initiators and coordinators, while private investors can provide financing and bring innovative solutions.

Cooperation with scientific and international organizations: Exchange of experience and knowledge with foreign partners and experts to apply best practices and innovative management methods.

Increasing the efficiency of project management in the regions of Kazakhstan requires an integrated approach, including educational training, the introduction of modern technologies and techniques, public-private partnerships, standardization of methodologies, as well as active cooperation both within the country and at the international level.

The application of these tools and techniques will enhance the efficiency of state project management in the regions, the quality of project accomplishment, and ensure their successful completion. This will rise the likelihood of effective execution of strategic projects aimed at developing regions and advancing the quality of population's life. In this way, it is possible to achieve sustainable development and increase the competitiveness of the regions of Kazakhstan.

3.3 Recommendations for regions on the accelerated implementation of project management as an innovative development tool

The experience of developed competitive countries, as well as global institutions, demonstrates that project approach comes under the most preferred and effective technologies for improving the functions of state and regional management.

As it was noted in the theoretical section of dissertation, the governments of countries such as the USA, United Kingdom, Switzerland, Japan, Russia and others actively employ project management standards in the public sector.

In accordance with international positive practice for the development of high-quality reasoned recommendations, we will consider and analyze the methodological aspects of implementing the project approach in planning and managing regional development and growth.

The need for accelerated implementation of project management as an innovative development tool is determined by the following advantages and positive sides:

- ✓ goals (achieving specified goals and objectives with limited resources);
- ✓ timeframe, deadlines (control over project deadlines);
- ✓ plan (integrated end-to-end planning);
- ✓ team (orientation and focus of team on the end result, aspiration towards a common purpose);
- ✓ manageability (opportunity to forecast and influence existing circumstances);
- ✓ transparency (access to information on the results of project, the possibility to observe the results, identify implicit prospects);
- ✓ productivity, outcome (precise, defined connection between decisions, communications, interactions and final result);
- ✓ responsibility, accountability (a clear understanding of who bears personal responsibility and how to guarantee a fulfillment of tasks.

In the Republic of Kazakhstan, in accordance with previously existing Rules of the implementation of project management, the National Project Management System provides the management of the following components:

1. Portfolios – at the level of the Administration of the President and the Government of the Republic of Kazakhstan (realization of portfolios of national priorities);

2. Programs – at the level of state bodies (realization of state programs, national projects, regional development plans);

3. Projects – at the level of realization of concrete projects through the creation of project teams and organization of their activities.

Also, the National Project Management System includes:

– Project Office (the head is appointed by the Prime Minister, the composition of this Office is formed from the staff of subdivision of the Government Apparatus, the authorized body for project management, the Center for the Development of Project Management in the public administration of the APA);

– Project Offices of state bodies;

– Unified information system of project management;

– Regulatory, legal and methodological base;

– System for improving personnel competencies based on educational, public and professional organizations.

Herewith, within a single state body, a single project office is established to ensure the implementation of all programs, national projects, basic directions, projects groups and projects in which this state body is a participant.

The formation and operation of a state body's project office is ensured within the budget and staffing levels of its subordinate organizations with the possibility of participation of other interested parties, regardless of the form of ownership.

The project office of state body can be created on the basis of state enterprise or organization, fifty percent or more of which belongs to the state.

The organizational structure of project management in state bodies is as follows:

1) Program Manager – first head of the state body;

2) Program Management Committee – a collegial body, decision-making center;

3) Head of typical basic direction – head of the state body's apparatus;

4) Head of basic direction – deputy first head of the state body;

5) Curator of project group (if necessary) – deputy head of the state body supervising the head of project group in the basic direction;

6) Project Office of state body – a collegial working body that ensures the implementation of portfolios of national priorities, the introduction and development of project management in the public sector;

7) project teams.

According to the approved structure, the following positions were envisaged in state bodies:

– Head of state body's Project Office;

– Chief Manager of state body's Project Office;

– Administrator of state body's Project Office;

– Consultant on project management.

Implementation team for each basic direction of the program:

– Head of the implementation group for basic direction of program;

– Chief Manager of the implementation group for basic direction of program;

– Administrator of the implementation group for basic direction of program.

Situation Analysis Center (if necessary):
– Head of the Situational – Analytical Center;
– Manager – Analyst of Situational – Analytical Center;
Communication Center:
– Head of Communication Center;
– Manager of Communication Center.
Expert Council. Members of the Expert Council:
– Secretary of the Expert Council («think tank» moderator);
– members of the expert analytical group;
– project group leaders;
– curators (sponsors) of projects;
– project coordinators;
– Head of the acceleration group;
– acceleration group managers;
– project manager;
– members of project team.

Features and peculiarities of project activities of the local executive body.

According to a legislative base, the following peculiarities have been identified in the field of public administration at the regional level:

– the project architecture of local executive bodies does not envisage the establishment of project offices at the level of regional center, city of rayon significance, rayon, rural okrug, settlement or village;

– LEB carries out the elaboration and realization of regional development plan in accordance with a single unified project architecture determined by the Office;

– Akim of regional center, city of rayon significance, rayon, rural okrug acts as the head of project group and ensures the management of heads of group of projects included in the group of projects under his supervision;

– Project offices of state bodies conduct operational monitoring and maintain comparative ratings of regions based on the achievement of key national indicators, the attainment of which is stipulated in regional development plans, using interactive online dashboards in the project management information system [178,179].

An analysis of regulatory documents indicated the absence of unified structure of Project Offices in local executive bodies. This has led to the fact that currently Project Offices in LEB function and develop unevenly.

As part of further improvement of project management in state bodies of the Republic of Kazakhstan, the previously existing Rules and Regulations were canceled in 2023.

The structure of project management has also been changed, according to which the National Project Office has become part of the Digital Government Office, which is headed by the Minister of Digital Development, Innovations and Aerospace Industry of the Republic of Kazakhstan (Figure 31).

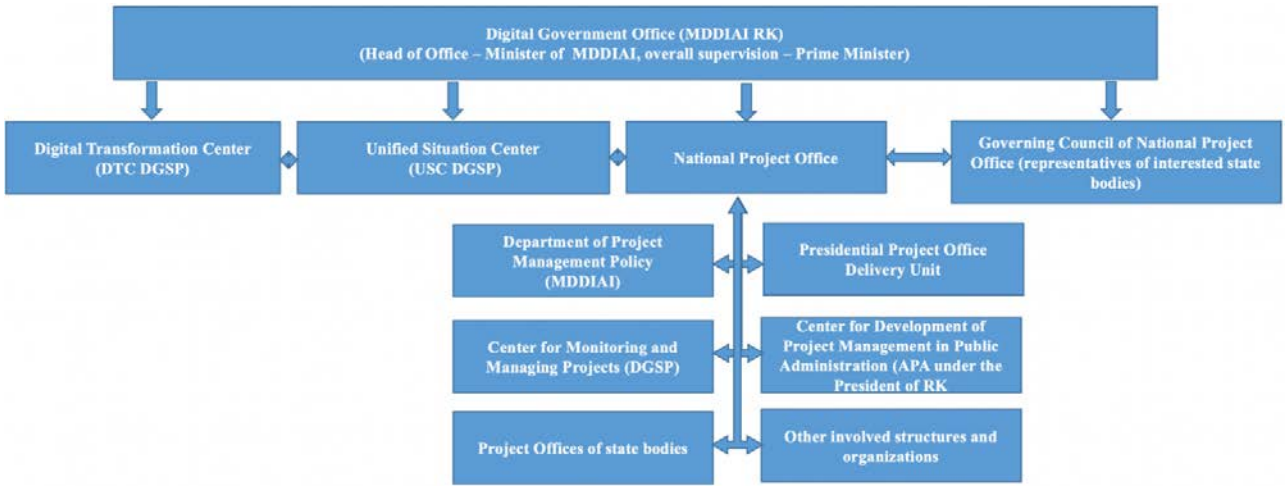


Figure 31 – Structure of project management and governance in state bodies

Remark – compiled by author

The reasons for these changes are due to global transformation associated with the development of technology and general digitalization.

The task of organizing project activity in state central and regional authorities in order to implement the priority directions of the country's strategic development includes changes of the approach to regional management, integration of project management standards and methods into the regional management system, and the right combination of cascade and agile project management models.

The consideration of project activity in isolation from extant management processes in the region is impossible. Consequently, the system of project management must be harmoniously integrated into the key processes of regional management, namely strategic planning, management of government programs and projects, budget planning and execution, procurement management processes, as well as the collection and assessment of indicators of region's socio-economic development.

Thus, based on the analysis and best foreign practices, a concept for the introduction and realization of project management in the regions of the Republic of Kazakhstan is proposed.

Suggestions for further enhancement of project activity in the regions of the Republic of Kazakhstan.

In contemporary economic conditions, the necessity for the improvement of the domestic system of managing regional development is distinctly evident.

Effective achievement of regional development goals, through the prism of modernization of the entire economy, including the formation of industrial clusters and the transition to innovative development, cannot be realized without the introduction of modern tools of managing socio-economic development.

In this regard, project management is one of the effective approaches to improve the performance of regional authorities.

Professional application of project approach will increase the transparency of the regional development management system, improve the quality of results from the realization of projects, reduce the time required for their implementation, and enhance the level of interaction between authorities, business community and society.

All of the above determines the relevance of the accelerated implementation of project management in the activity of regional authorities.

Given the changes in the normative base of project management, the next stage in the transition of system of managing the socio-economic development of regions to a qualitatively new level is the creation of unified structure of project offices in the Akimats of regions and cities of republican significance.

In particular, the introduction of unified structure (based on the Digital Development Departments of Akimats) will ensure the rise of openness and mobility of project management system of regional socio-economic development, with the ability for prompt resolution of the assigned tasks in regions (Figure 32).

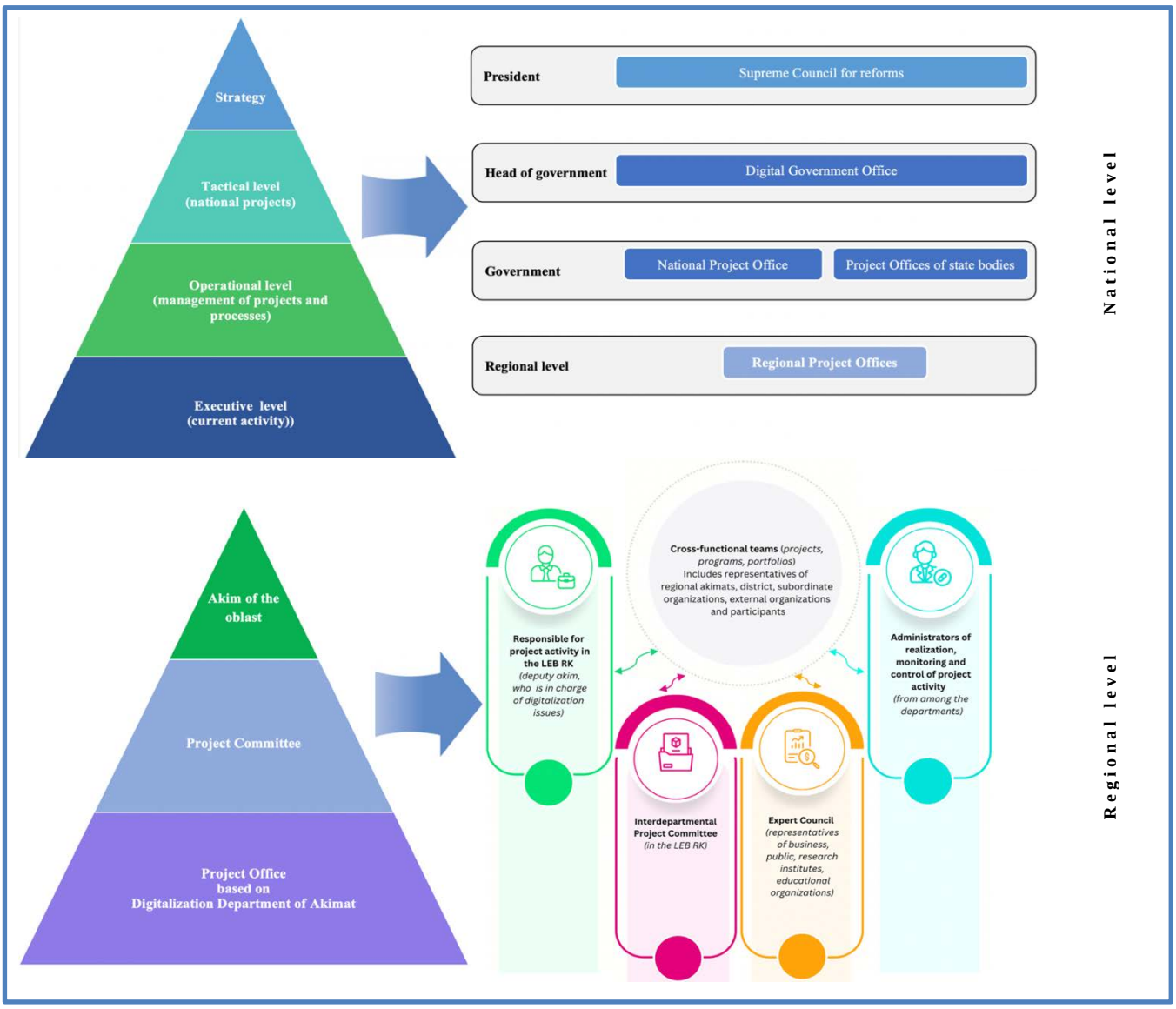


Figure 32 – Organizational structure

Remark – author generated

For the effective functioning of project management in the regions, we propose a scheme of the institutional environment, including the normative legal base, objects and subjects of project management, as well as the process of its implementation (Figure 33).

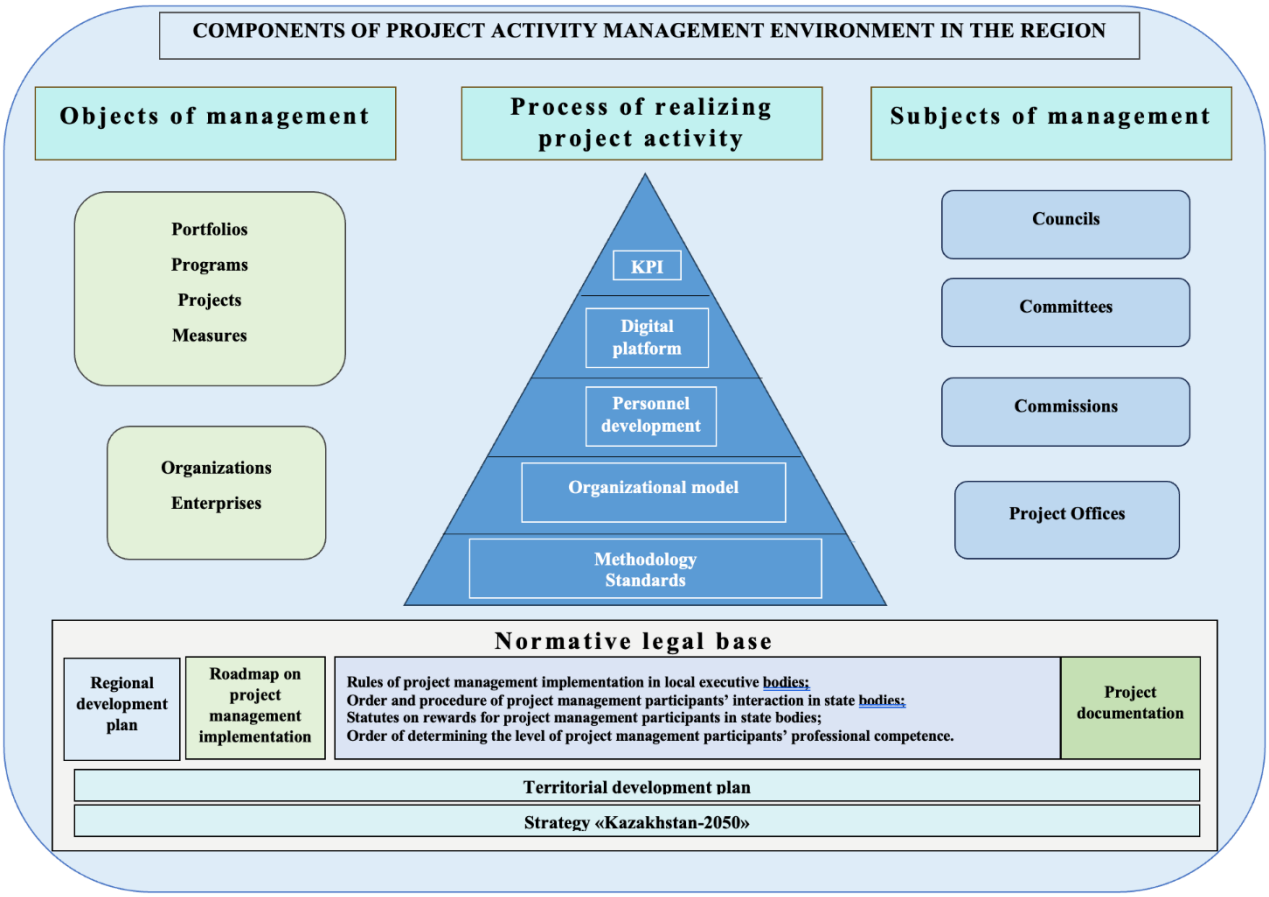


Figure 33 – Scheme of the institutional environment of project management system

Remark – author generated

In turn, the creation of institutional environment will require the realization of complex of management measures both in central and local executive bodies.

Further refinement of the normative legal base of project management will necessitate the development and approval of the following documents:

1. Rules of project management implementation in central executive bodies;
2. Rules of project management implementation in local executive bodies;
3. Order and procedure of project management participants' interaction in state bodies;
4. Statutes on rewards for project management participants in state bodies;
5. Order of determining the level of project management participants' professional competence.

To achieve strategic purposes of the region's development, it is necessary to build a high-quality project management system containing separate basic peculiarities such as legislative and regulatory base, unified methodology, digital platform, organizational model, etc. (Figure 34).

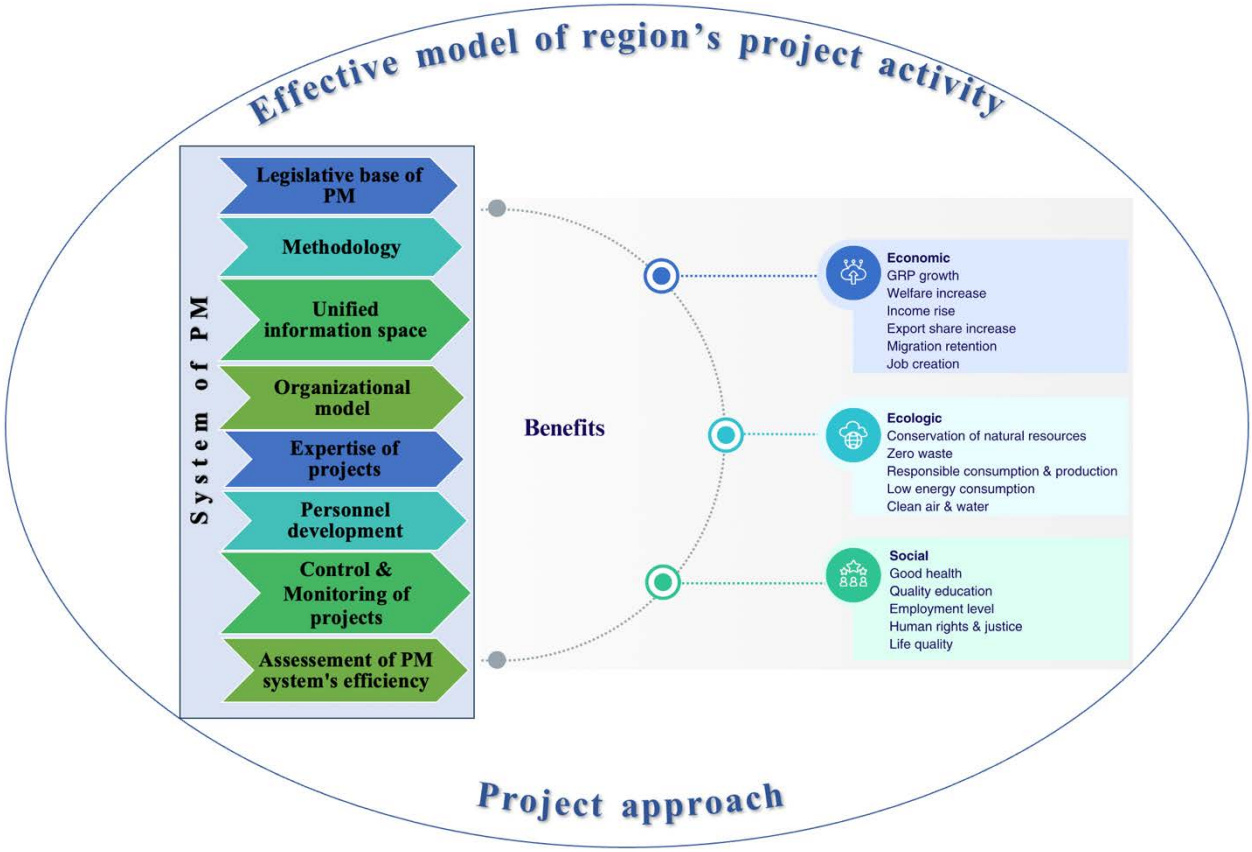


Figure 34 – System of region's project activity management

Remark – author generated

Along with this, strengthening the interaction of state bodies with scientific organizations and enterprises of economy's real sector deserves close attention.

The widespread development of research workflows and the application of science-based results in everyday management activities will have a positive impact on the progressive solutions in science, increase of education' quality, refinement of the functioning of economy's real sector and, as a consequence, public administration in general.

To implement this direction, it is necessary to continue to develop mechanisms for interaction and financing of fundamental and applied research, which should be carried out from the funds of state bodies and private organizations.

CONCLUSION

During the course of dissertation work, the importance and relevance of the chosen topic were substantiated. The research hypotheses were confirmed based on theoretical and practical data. The main goals of research work have been achieved and the assigned tasks have been solved. As a result, key conclusions were formulated and recommendations were developed:

1. The progress of state is directly linked to the economic development and growth of its regions. The diversity of subjects of the Republic of Kazakhstan serves not as a barrier, but as a catalyst for the introduction of project management system at the regional level. The primary aspect of the work of regional bodies is finding a balance between economic and social directions of development when selecting models, objectives, and approaches to territorial management. We formed and provided a classification of regions based on certain typological criteria: according to the principle of homogeneity, the principle of interconnection, investment attractiveness, level of economic development, specialization, major problems, regional policy goals, experience of project management development, etc.

2. The content of regional project management goals is defined. These goals vary depending on the approach to the formation of the term «region» and different interpretation of the concept. Scholars and practitioners describe the notion «region» in terms of not only its traditional origin from the Latin «regio» (direction, border), but also from «regere» (to lead, guide, manage). Thus, it has been revealed that this concept contains two components: spatial and form of ownership.

3. The systematization of theoretical teachings of regional science is conducted. The wide spectrum of theories and models of regional growth has been examined with the aim of finding effective mechanisms for reducing the unevenness of regional development, decreasing inequality, and ensuring sustainable development.

4. The review of regional diversity, peculiarities and competitive advantages of territorial formations of the Republic of Kazakhstan, a country with multinational, multicultural, economic and rich natural specifics, occupying a strategic geopolitical position in Central Asia and on the Eurasian continent, is presented.

5. The role of project management in regional development policy of Kazakhstan is determined, the stages of its formation in line with global development and national context are considered. The historical processes of project management are structured according to the stages of development of managerial thought, highlighting certain schools that follow one another and complement each other with new substantive aspects of understanding project management.

The author’s definition of the concept «Project Approach in Regional Management» is formulated as following: «a methodology of management aimed at increasing the effectiveness of public authorities’ activity to achieve concrete results and socio-economic effects within a certain time frame with limited financial, human, material and technical resources».

6. The coefficients of interregional (G_1) and country inequality (G_2) in Kazakhstan were calculated to determine the dynamics of these indicators over a 25-year period and the impact on the benefits of government programs and projects of regional economic development.

For the period of 1995-2020, it was found that the gap between interregional inequality and country inequality is insignificant. In addition, the average indicators decreased in the period of 1996-2003, which is a characteristic of the state policy to stimulate economic growth. The highest numbers of interregional and country inequality were revealed in 2015-2019 period, which is associated with the devaluation of national currency and the fall in energy prices. Both indicators showed downward trends from 2019 to 2020. It should be noted that absolute country inequality (G_2) during 1995-2006 mainly increased, then it is characterized by a downward trend until 2012. In subsequent years, there has been an increase in country inequality with a sharp rise of indicator in 2018 (38.04%) and an indicator decrease to 30.91% in 2020.

It was found that there is relationship between inequality, income, and growth. It is noteworthy that in models with real incomes, the increase in income has a negative impact on the development of Kazakhstan's economy. With income growth of 1%, real GRP per capita will decrease by 0.2%. The growth of country inequality by 1 point will increase Kazakhstan's GRP by 0.5%. In models with real wages, the opposite effect is observed. In particular, the increase in real wages positively impacts the country's economic growth. With a 1% rise in wages, real GRP per capita will increase by 0.4%. All models demonstrated the positive link between inequality and growth. In general, the hypothesis of this study about the impact of inequality, income and wages on the dynamics of economic growth in Kazakhstan is confirmed by empirical calculations.

7. The comparative analysis of national projects and government programs was carried out based on their definitions, scope, objectives, realization and impact. The differentiation of content aspects of programs and projects in the areas of regional development, digitalization and support for entrepreneurship and business in the Republic of Kazakhstan is proposed.

8. The critical analysis of known and new maturity models, as well as an assessment of project management maturity of the country's government bodies, has enabled to determine the state and level of project management maturity with the ranking of the republic's regions and the identification of leaders in the rating. Based on the findings of the conducted research, more and less mature process areas have been recognized. Thus, the most mature are financial management and management control. The least mature are risk management and organizational governance.

9. The author's methodological innovation in terms of developing the methods for calculating the regional competitiveness index of Kazakhstan is proposed on the basis of existing advances methodologies. Competitiveness factors that promote or hinder the growth of the region are identified. The results of the study can be integrated into strategizing processes, management processes of government programs and projects, budget planning and execution processes, procurement management

processes, processes of collecting and analyzing parameters of region's socio-economic development. Target consumers can be regional project offices, business associations and public organizations in their project work at the corresponding level.

10. The contemporary picture and recent changes in the state regional project management of the republic is presented. Changing models of activity and abandoning traditional process management in favor of project-oriented system allow to significantly increase the performance of state authorities' activity and the satisfaction of population through the successful implementation of development projects and transparency in the expenditure of limited budget funds.

From a public administration position, the project approach is not strongly tied to a particular public administration paradigm. This method of organizing the activity is easily integrated into various management structures and corresponds to the values of new models that have emerged in recent decades. The project approach emphasizes the importance of participation of all stakeholders, openness of management processes, the desire to coordinate and realize cross-sector solutions, and the enhancement of learning, interactive and collaborative public environment.

11. The author's model of project management for the development of region is elaborated, including the institutional environment of project management system, system of region's project activity management and organizational structure of the region. The project approach in the spatial context should be realized in the subject of the state on the basis of collaboration between government officials, business representatives, public and scientific organizations. This cooperation involves the application of innovative models of effective management and systemic methods. When developing and approving normative documents in the field of project management in the established order, it is recommended to take into account the proposals and interests of all participants, including the business community, non-profit, public and scientific organizations.

The author demonstrates that currently the development of regional socio-economic systems requires new management technologies and approaches to decision making. These innovations must provide in-depth analysis and mandatory consideration of public requirements, paying attention not only to economic, but also to social and environmental needs.

In the project management model for regional development, the author used the United Nations Sustainable Development Goals until 2030 as a strategic starting point. The sustainable development goals, which are of a global nature and significance, contribute to the creation of the comprehensive balance between social, economic and environmental aspects in the activity of government bodies, centered around the interests of citizens and sustainable development of the territory. Orientation towards sustainable development is especially promising since their social strand increases the attractiveness of government and management bodies and conduces to the formation of public consent.

LIST OF REFERENCES

1. https://www.akorda.kz/ru/events/glava-gosudarstva-provel-pervoe-zasedanie-vysshego-coveta-po-reformam
2. https://online.zakon.kz/Document/?doc_id=38490966#pos=889;-17
3. https://www.akorda.kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-ekonomicheskiy-kurs-spravedlivogo-kazahstana-18588
4. Granberg A.G. Fundamentals of regional economics. – M.: Publ.house State University HSE, 2006. – 495 p.
5. Markusen A. Regions: The Economics and Politics of Territory. NJ: Rowman and Littlefield Publishers, 1987.
6. Fujita M., Krugman P. When is the economy monocentric: von Thunen and Chambertin unified // Regional Science and Urban Economics. – 1995. – Vol. 254. – P. 505-528.
7. Berezina E.V., Vasiliyeva L.V. Generalization of classification characteristics reflecting different aspects of regions' differentiation // Bulettin of the University. – 2019. – No 10. – P.86-92.
8. Mottaeva A.B., Mottaeva A.B. Analysis of regions' typology for the purposes of building a sustainable development policy of Russia. // Internet-journal «SCIENCE». – 2014. – 4(23). – P.1-10.
9. Ramenskaya L.A. Peculiarities of project management in government bodies at the reginal level // Fundamental research. – 2018. – No. 1. – P. 111-115.
10. Ignatov V.G., Butov V.I. Regional Studies: Teaching guide. – M:Tesa, 2011. – 18 p.
11. Rumyantseva E. E. New economic encyclopedia. Afterword to the definition of the essence of basic concepts in economic science and practice. – M: Direct-Media, 2017. – 47 p.
12. Smirnov V. V. Increasing the effectiveness of region's socio-economic development: theory, assessment, integrational vector // Regional economics: theory and practice. – 2007. – No10(49). – P. 19-25.
13. Gutman G. V. Region in the formation of social state. / G. V. Gutman, O. P. Zvyagintseva, A. A. Miroyedov. – M: Finance and statistics, 2005. – 160 p.
14. Andreev A. V. Fundamentals of regional economics: Teaching guide / A. V. Andreev, L. M. Borisova, E. V. Pluchevskaya. – M: KNORUS, 2007. – 336 p.
15. Longman Business English Dictionary. London: Pearson Education Limited, 2007.
16. https://research.un.org/en/docs/dev#:~:text=%22Development%20is%20one%20of%20the,reinforcing%20components%20of%20sustainable%20development.
17. https://data.worldbank.org/indicator/NY.GNP.PCAP.CD
18. https://www.oecd.org/cfe/regionaldevelopment/regionaldevelopment.htm
19. Stimson R.J., Stought R.R. Roberts B.H. (Eds.) Regional Economic Development. Analysis and Planning Strategy. With assistance of M.M. Fischer, G.J.D. Hewings, P. Nijkamp, F. Snickars. Advances in Spatial Science. Berlin, Heidelberg, New York: Springer, 2002.

20. Capello R. Regional Economics. – UK: Routledge, 2016. – 37p.
21. Isard W. Location and Space-economy: a General Theory Relating to Industrial Location, Market Areas, Land Use, Trade, and Urban Structure. Cambridge: Published jointly by the Technology Press of Massachusetts Institute of Technology and Wiley, 1956. – 22–88 p.
22. Boudeville J. Les 'espace economique. – Paris, 1961. 16–37 p.
23. Perrous F. L'economie du xx -eme siecle. Paris, 1961. 44–61 p.
24. Topoleva T. N. Genesis of conceptual approaches to spatial economics // Vestnik of REU named after G. V. Plekhanov – 2022. – No 4(124). – P.94-130.
25. Pike A., Rodriguez-Pose A., Tomaney J. What Kind of Local and Regional Development and for Whom? // Regional Studies. – 2007. 41(9). P. 1253–1269.
26. Solow R. A Contribution to the Theory of Economic Growth // Quarterly Journal of Economics. – 1956. (70)1, P.65-94.
27. Barro R. J., Sala-i-Martin X. Economic Growth and Convergence across The United States. NBER Working Papers No. 3419, 1990. National Bureau of Economic Research, Inc.
28. Gardiner B., Martin R., Tyler P. Competitiveness, Productivity and Economic Growth across the European Regions. – London: Routledge, 2006. – 55–77 p.
29. Romer P. M. Endogenous technological change // Journal of Political Economy. – 1990 – 98 (5). P. 71-102
30. Pred A. R. The Spatial Dynamics of U. S. Urban-Industrial Growth. – Cambridge: MIT Press, 1966. – 1800–1914 p.
31. Fujita M., Mori T. Structural Stability and the Evolution of Urban Systems // Regional Science and Urban Economics. – 1997. – Vol. 27(4-5). – P. 339–442.
32. Friedmann J. Regional Development Policy: A Case Study of Venezuela. – Cambridge: MIT Press, 1966.
33. Smith A. Study on the nature and causes of the wealth of Nations. – M:Esksmo, 2020.
34. Hirschman A. The Strategy of Economic Development. – New Haven: Yale University Press, 1958.
35. Porter M. International competition. – M: International relations, 1993.
36. Oueslati W., Alvanides S., Garrod G. Determinants of Urban Sprawl in European Cities // Urban Studies. – 2015. – Vol. 52(9). – P. 1594–1614.
37. Davis D., Weinstein D. Bones, Bombs, and Break Points: The Geography of Economic Activity // American Economic Review. – 2002. – Vol. 92. – N 5. – P. 1269–1289.
38. Dzhurka N. G. System of spatial markets in the national economy: measurement problems // Spatial economics. – 2021. – Vol. 17. – No 4. – P. 16–40.
39. Kirdina-Chandler S. G. About the paragmatic nature of mezoeconomics // Mezoeconomics: elements of new paradigms / edited by V. I. Mayevsky, S. G. Kirdina-Chandler. – M. : Institute of Economics RES, 2020. – P. 342–346.

40. Lavrikova Yu. G., Akberdina V. V., Suvorova A. V. Coordination of priorities of scientific technological and spatial development of industrial regions // Economy of region. – 2019. – Vo. 15. – No 4. – P. 1022–1035.
41. Minakir P. A., Dzhurka N. G. Methodological foundations of spatial research in economics // Vestnik of Russian Academy of Sciences. – 2018. – Vol. 88. – No 7. – P. 589–598.
42. Behrens K., Murata Y., Mion G., Suedekum J. Quantifying the Gap between Equilibrium and Optimum under Monopolistic Competition // Quarterly Journal of Economics. – 2020. – Vol. 135(4). – P. 2299–2360.
43. Evans S., Bahramy H. Super-Flexibility in Practice: Insights from a Crisis // Global Journal of Flexible Systems Management. – 2020. – N 21(3). – P. 207–214.
44. Hirano T., Murakami D., Seya H., Yamagata Y., Yoshida T. Spatial Analysis Using Big Data: Methods and Urban Applications / edited by Y. Yamagata, T. Yoshida. – London: Academic Press, 2019.
45. Scala M., Rydvalova P. Evolving Insight of Localization Theories into Cluster Existence // Innovation and Performance Drivers of Business Clusters / edited by M. Zizka, P. Rydvalova. – Springer, 2021. – P. 7–24.
46. Thisse J., Proost P. What Can Be Learned from Spatial Economics? // Journal of Economic Literature. – 2019. – Vol. 57(3). – P. 575–643.
47. https://adilet.zan.kz/rus/docs/Z930004200_
48. Regions of Kazakhstan in 2021. Statistical Yearbook. Bureau of National Statistics Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. – Astana: IE «B-PROFIT», 2022. – 4-450 p.
49. https://www.gov.kz/memleket/entities/aqmola?lang=ru
50. https://www.gov.kz/memleket/entities/aktobe?lang=ru
51. https://www.gov.kz/memleket/entities/almobl?lang=ru
52. https://www.gov.kz/memleket/entities/atyrau?lang=ru
53. https://www.gov.kz/memleket/entities/bko?lang=ru
54. https://www.gov.kz/memleket/entities/zhambyl?lang=ru
55. https://www.gov.kz/memleket/entities/karaganda?lang=ru
56. https://www.gov.kz/memleket/entities/kostanay?lang=ru
57. https://www.gov.kz/memleket/entities/kyzylorda?lang=ru
58. https://www.gov.kz/memleket/entities/mangystau?lang=ru
59. https://www.gov.kz/memleket/entities/pavlodar?lang=ru
60. https://www.gov.kz/memleket/entities/sko?lang=ru
61. https://www.gov.kz/memleket/entities/ontustik?lang=ru
62. https://www.gov.kz/memleket/entities/akimvko?lang=ru
63. https://www.gov.kz/memleket/entities/astana?lang=ru
64. https://www.gov.kz/memleket/entities/almaty?lang=ru
65. https://www.gov.kz/memleket/entities/shymkent?lang=ru
66. https://www.akorda.kz/ru/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-181130

67. Iivari J., Hirschheim R., Klein H.K. A dynamic framework for classifying information systems development methodologies and approaches // Journal of Management Information Systems. – 2000. – 17(3). – P.179–218.
68. A guide to the project management body of knowledge (PMBOK guide): Project Management Institute – 6th edition. – Newton Square, Pennsylvania, USA. – 2017.
69. Humphrey W.S. Managing the Software Process. – Boston, MA: Addison-Wesley. – 1989.
70. Brinkkemper S. Method engineering: engineering of information systems development methods and tools // Information and Software Technology. – 1996. – 38(4). – P. 275-280.
71. Introna L. D., Whitley E. A. Against methodism: Exploring the limits of method // Information Technology & People. – 1997. – 10(1). – P 31–45.
72. Clarke A. A practical use of key success factors to improve the effectiveness of project management // International Journal of Project Management. – 1999. – 17. – P.139-145.
73. Turner J. R., Keegan A. The management of operations in the project-based organization // Journal of Change Management. – 2000. – 1. – P.131-148.
74. Gane C. Process Management: Integrating Project Management and Development. In Tinirello, P.C. (Ed.) New Directions in Project Management. Boca Raton, FL: Auerbach Publications, 2001. – 67-82 pp.
75. Cockburn A. People and Methodologies in Software Development. Doctoral Dissertation. University of Oslo, Oslo, Norway, 2003.
76. Charvat J. Project Management Methodologies: Selecting, Implementing, and Supporting Methodologies and Processes for Projects. Hoboken, NJ: John Wiley & Sons, Inc., 2003.
77. Kerzner, H., 2004. Advanced project management: Best practices on implementation. John Wiley & Sons.
78. Office of Government Commerce. Managing Successful Projects with PRINCE 2. Norwich, UK: The Stationary Office, 2009.
79. Ericsson. PROPS Manual for Project Managers. Ericsson, Stockholm, Sweden, 2013.
80. Spundak M. Mixed agile/traditional project management methodology–reality or illusion? // Procedia-Social and Behavioral Sciences. – 2014. – 119. – P. 939–948.
81. Muller R., Drouin N., Sankaran S. Modeling Organizational Project Management // Project Management Journal. – 2019. – 50. – P. 499–513. doi: https://doi.org/10.1177/8756972819847876.
82. McGrath S., Whitty J. Practitioner views on project management methodology (PMM) effectiveness: Journal of Modern Project Management. 2020, no. 8(1), pp. 188-215. https://doi.org/10.19255/JMPM02310.
83. Najdawi A., Shaheen A. Which Project Management Methodology is better for AI-Transformation and Innovation Projects? International Conference on Innovative Practices in Technology and Management (ICIPTM). 2021, pp. 205-210, doi: https://doi.org/10.1109/ICIPTM52218.2021.9388357.

84. Hass K. B. The blending of traditional and agile project management // PM world today. – 2007. – No 9(5). – P.1-8.
85. Wysocki R. Effective Project Management: Traditional, Agile, Extreme. 7th ed. – John Wiley & Sons, Inc., 2014.
86. Spundak M. Mixed agile/traditional project management methodology–reality or illusion? // Procedia-Social and Behavioral Sciences. – 2014. – 119. – P. 939–948.
87. Sheffield J., Lemétayer J. Critical success factors in project management methodology fit. Paper presented at PMI® Global Congress 2010—Asia Pacific, Melbourne, Victoria, Australia. Newtown Square, PA: Project Management Institute, 2010.
88. Yusuf Y. Y., Sarhadi M., Gunasekaran, A. Agile manufacturing: The drivers, concepts and attributes // International Journal of Production Economics. – 1999. – 62(1). – P.33-43.
89. Conforto E. C., Salum F., Amaral D. C., da Silva S. L., Magnanini de Almeida, L. F. Can agile project management be adopted by industries other than software development? // Project Management Journal. – 2014. – 45(3) – P.21-34.
90. Aguanno K. Managing agile projects. Lakefield, Canada: Multi–Media Publications Inc., 2004.
91. Highsmith J. Agile project management: Creating innovative products. Upper Saddle River, NJ: Addison-Wesley, 2009.
92. De Carlo D. Extreme Project Management. San Francisco: Jossey–Bass, 2004.
93. Chin G. Agile project management: how to succeed in the face of changing project requirements. New York: AMACOM, 2004.
94. Chow T., Cao D. A survey study of critical success factors in agile software projects // The Journal of Systems and Software. – 2008. – 81(6). – P. 961–971.
95. Project Management Institute (PMI). PMI 2017 Pulse of the Profession In-Depth Reports: Organizational Agility Increases Project Success Rates, 2017.
96. Chiu Y. An introduction to the History of Project Management: From the Earliest Times to A.D.1900. Delft: Eburon, 2010.
97. Gilles G. A history of project management models: From pre-models to the standard models // International Journal of Project Management. – 2013. – 31. – P. 663–669.
98. Kerzner H. Project Management: A Systems Approach to Planning, Scheduling, and Controlling, 12th Edition. John Wiley&Sons, Inc., 2017.
99. Turner R., Anbari F., Bredillet C. Perspectives on research in project management: the nine schools // Glob Bus Perspect. – 2013. – 1. – P.3–28.
100. Alexandrova M., Ivanova L. Critical success factors of project management: empirical evidence from projects supported by EU programmes // 9th International ASECU Conference on “Systematic Economics Crisis: Current Issues and Perspectives”, Skopje, Macedonia. 2012.
101. International Project Management Association (IPMA). Individual Competence Baseline Version 4.0. 2015. – 25 p.

102. A guide to the project management body of knowledge (PMBOK guide): Project Management Institute, – 7th edition. – Newton Square, Pennsylvania, USA. – 2021.
103. PRINCE2 6th Edition. 2017. Axelos Ltd.
104. International Project Management Standard ISO 21502:2020 – Guidance on project management ISO. 2020. – 5c.
105. Proceedings of the 1st Congress of Kazakhstan's engineers, Almaty, KazSISTI, 1993.
106. Kazakhstan-2030. Prosperity, security and improvement of welfare of Kazakhstan's citizens. https://adilet.zan.kz/rus/docs/K970002030_
107. Address by the President of the Republic of Kazakhstan «Strategy «Kazakhstan-2050»: a new political course of the established state» dated 14.12.2012. https://www.akorda.kz/ru/events/astana_kazakhstan/participation_in_events/poslanie-prezidenta-respubliki-kazahstan-lidera-nacii-nursultana-nazarbaeva-narodu-kazahstana-strategiya-kazahstan-2050-novyi-politicheskii-
108. What is the innovative approach to the realization of national projects dated 19.10.2021. URL: https://strategy2050.kz/ru/news/v-chem-zaklyuchaetsya-innovatsionnyy-podkhod-realizatsii-natsproektov/
109. Address by the Head of state Kassym-Jomart Tokayev to the citizens of Kazakhstan dated 01.09.2020. URL: https://www.akorda.kz/ru/addresses/addresses_of_president/poslanie-glavy-gosudarstva-kasym-zhomarta-tokaeva-narodu-kazahstana-1-sentyabrya-2020-g
110. https://spmrk.kz/about/history
111. Turkebayeva K.T., Sabden O.S. Current state and development of project management in the Republic of Kazakhstan // Bulletin of the University «Turan». – 2022. – (3). – P.187-200.
112. Ereshev B., Tsekhovoy A. About the state and perspectives of project management development in Kazakhstan // Public management and public service. – 2016.
113. Kartov A.E. Perpectives of project management application in the government sector // Economics: sStrategy and Practice. – 2020. – No 4 (15) – P.175-186.
114. Hacibedel M. B., Mandon P., Muthoora M. P., Pouokam, N. Inequality in good and bad times: A cross-country approach. International Monetary Fund, 2019.
115. Decree of the President of the Republic of Kazakhstan dated February 15, 2018 No. 636 «On the approval of Strategic Development Plan of the Republic of Kazakhstan until 2025» https://adilet.zan.kz/rus/docs/U1800000636
116. UNDP. Urbanization as an Accelerator of Inclusive and Sustainable Development, National Human Development Report, Whiteshield Partners, 2019.
117. Stiglitz, J. E. The price of inequality: How today's divided society endangers our future. WW Norton & Company, 2012.
118. Kuznets, S. Economic growth and income inequality. The American economic review. – 1955. – 45(1) – P.1-28.

119. Bussolo M., De Hoyos R., Medvedev D., van der Mensbrugghe D. Global growth and distribution: are China and India reshaping the world. World Bank Policy Research Working Paper Series. 2007. 4392.
120. Panizza U. Income inequality and economic growth: Evidence from American data. Journal of Economic Growth. – 2002. – 7(1) – P.25-41.
121. Berg A., Ostry J. D., Tsangarides C. G., Yakhshilikov Y. Redistribution, inequality, and growth: new evidence. Journal of Economic Growth. – 2018. – 23(3) – P.259-305. https://doi.org/10.1007/s10887-017-9150-2
122. Gutiérrez-Romero, R. How does inequality affect long-run growth? Cross-industry, cross-country evidence. Economic Modelling. – 2021. – 95 – P.274-297. https://doi.org/10.1016/j.econmod.2020.11.016
123. Erman L., te Kaat D. M. Inequality and growth: industry-level evidence. Journal of Economic Growth. – 2019. – 24(3) – P.283-308. https://doi.org/10.1007/s10887-019-09169-z
124. Perotti R. Growth, income distribution, and democracy: What the data say. Journal of Economic growth. – 1996. – 1(2) – P.149-187.
125. Keefer P., Knack,S. Polarization, politics and property rights: Links between inequality and growth. Public choice. – 2002. – 111(1) – P.127-154.
126. Murphy K. M., Shleifer,A., Vishny R. W. Industrialization and the big push. Journal of political economy. – 1989. – 97(5) – P.1003-1026.
127. Rosenstein-Rodan, P. N. Problems of industrialisation of eastern and south-eastern Europe. The economic journal. – 1943. – 53(210/211) – P.202-211.
128. Galor O., Zeira J. Income distribution and macroeconomics. The review of economic studies. – 1993. – 60(1) – P.35-52.
129. Kaldor N. Alternative theories of distribution. The review of economic studies. – 1955. – 23(2) – P.83-100.
130. Mirrlees J. A. An exploration in the theory of optimum income taxation. The review of economic studies. – 1971. – 38(2) – P.175-208.
131. Cingano F. Trends in income inequality and its impact on economic growth. Migration Working Papers. 2014 https://doi.org/http://dx.doi.org/10.1787/5jxrjncwxv6j-en
132. Milanovic B. Worlds Apart: Measuring International and Global Inequality. New Jersey: Princeton University Press, 2005
133. Bureau of National Statistics Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. Regions. Dynamics of the main socio-economic indicators http://www.stat.gov.kz
134. Caraballo M. Á., Dabús C., Delbianco F. Income Inequality and Economic Growth Revisited. A Note. Journal of International Development. – 2017. – 29(7) – P.1025–1029. https://doi.org/10.1002/jid.3300
135. Halter D., Oechslin M., Zweimdller J. Inequality and Growth: the Neglected Time Dimension. Journal of Economic Growth. – 2014. – 19(1) – P. 81-104. https://doi.org/10.1007/s10887-013-9099-8

136. Dusek T., Lukács R., Rácz I. Development Differences among the Regions of Hungary. Procedia Economics and Finance. – 2014. – 9 – P. 264–277. https://doi.org/10.1016/s2212-5671(14)00028-8
137. Barro R. J. Inequality and Growth in a Panel of Countries. Journal of Economic Growth. – 2000. – 5(1) – P.5–32. https://doi.org/10.1023/A:1009850119329
138. Lin Y., Huang H., Yeh C. Inequality-growth nexus along the development process. Studies in Nonlinear Dynamics & Econometrics. – 2014. – 18(3) – P.237-252. https://doi.org/10.1515/snde-2012-0037
139. Glaeser E. L., Mare D. Cities and Skills. Journal of Labor Economics. – 2001. – 19(2) – P.316-342. https://doi.org/10.1086/319563
140. Liu W., McKibbin W. J. Macroeconomic Impacts of Global Demographic Change on Australia. SSRN Electronic Journal. 2020 http://dx.doi.org/10.2139/ssrn.3566773
141. https://strategy2050.kz/ru/news/novaya-model-gosplanirovaniya-obshchenatsionalnye-prioritety-i-natsionalnyy-plan-razvitiya/
142. Decree of Government of the Republic of Kazakhstan. On the approval of State Planning System in the Republic of Kazakhstan: approved in November 29, 2017 года, No. 790 // https://adilet.zan.kz/rus/docs/P1700000790#z3
143. Decree of Government of the Republic of Kazakhstan. On amendments ot the Decree of the Government of the Republic of Kazakhstan No. 790 « On the approval of State Planning System in the Republic of Kazakhstan »: approved in February 26, 2021 No. 99. https://adilet.zan.kz/rus/docs/P2100000099#z6
144. On some issues of national projects. Joint order of the Minister of National Economy of the Republic of Kazakhstan dated August 11, 2021 No. 79 and the Chairman of Agency for Strategic Planning and Reforms of the Republic of Kazakhstan dated August 12, 2021 No. 1. https://adilet.zan.kz/rus/docs/V2100023968
145. https://akorda.kz/ru/ob-utverzhdenii-perechnya-nacionalnyh-proektov-1391918
146. Organizational project management maturity model (OPM3). Project Management Institute, – Third edition – Newton Square, Pennsylvania, USA. – 2013.
147. Albrecht J.C., Spang K. Disassembling and Reassembling Project Management Maturity // Project Management Journal. – 2016. – Vol. 47, No. 5. – P.18–35.
148. Project Management Maturity: A Framework for Success in Sub-Saharan Centres of Excellence? Doctoral dissertation. Albin Michael Jacobs. 2020.
149. Bushuyev S., Wagner R. IPMA Delta and IPMA Organisational Competence Baseline (OCB): new approaches in the field of project management maturity // International Journal of Managing Projects in Business. – 2014. Vol. 7., No 2. – P. 1-12.
150. Kerzner H. Strategic Planning for Project Management: Using a Project Management Maturity Model. Hoboken: John Wiley & Sons, 2001. – P. 42.
151. Portfolio, Programme and Project Management Maturity Model (P3M3). The Office of Government Commerce (OGC). 2006. http://miroslawdabrowski.com/downloads/P3M3/OGC%20branded/P3M3_v2.1_Introduction_and_Guide.pdf

152. Kwak H., Sadatsafavi H., Walewski J., Williams N. Evolution of project based organization: A case study // International Journal of Project Management. – 2015. – P. 1-13.
153. Seelhofer D., Graf O.C. National Project Management Maturity: A Conceptual Framework // Central European Business Review. – 2018. – Vol. 7 No. 2. – P. 1-20.
154. Silvius, A. J. G. and Schipper, R. Developing a maturity model for assessing sustainable project management // Journal of Modern Project Management. – 2015. – Vol. 3, No. 1 – P. 16-27.
155. PMI. Talent Gap: Ten-Year Employment Trends, Costs, and Global Implications. – 2021.
156. Porter M. The Competitive Advantage of Nations // Harvard Business Review. – 1990. – P. 1-21.
157. Lall S. Competitiveness Indices and Developing Countries: An Economic Evaluation of the Global Competitiveness Report // World Development. – 2001. – Vol.29, No. 9. – P. 1501-1525.
158. Gelvanovsky M.I. On methods of intercountry comparison of competitiveness indicators // Questions of Statistics. – 2010. – Vol. 3. – P. 52-58.
159. Cheba K., Bak I., Szopik-Depczynska K. Sustainable competitiveness as a new economic category – definition and measurement assessment // Technological and Economic Development of Economy. – 2020. – 26 (6) – P. 1399–1421.
160. Сабден О. Competitiveness of the national economy: assessment criteria and ways for improvement. – Almaty: Economics, 2007. – 175 p.
161. Khusainov B. Globalization, Transnationalization, Integration. – Almaty: Institute of Economics MES RK, 2012. – 312 p.
162. The global competitiveness report 2014–2015 / World Economic Forum. – Geneva, 2015.
163. Technology and the Economy: The Key Relationships / OECD. – Paris, 1992.
164. IMD World Competitiveness Yearbook 2014 / IMD World Competitiveness Center. – Lausanne, 2014.
165. European competitiveness report 2011. Commission Staff Working Document SEC. Luxembourg: European Commission, 2011. 242 p.
166. https://www.akorda.kz/ru/official_documents/strategies_and_programs
167. https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking/2023/
168. https://www.weforum.org/reports/the-global-competitiveness-report-2020/
169. European Commission. A study on the factors on regional competitiveness, Brussels: European Commission. – 2003.
170. https://ec.europa.eu/regional_policy/assets/regional-ompetitiveness/index.html#/
171. https://orca.cardiff.ac.uk/id/eprint/161505/1/UK%20competitive%20index%202023%20R%20Huggins.pdf
172. *https://www.ubs.com/content/dam/assets/news/2021/08/25/kwi-2021-en.pdf*
173. Decree of the President of Republic of Kazakhstan dated February 26, 2021 No. 522 «On approval of Concept for the development of public administration in the

Republic of Kazakhstan until 2030» // Information and legal system of normative legal acts of the Republic of Kazakhstan «Adilet». – URL: https://adilet.zan.kz/rus/docs/U2100000522.
174. Order of the Chairman of the Agency of the Republic of Kazakhstan for Civil Service Affairs dated August 11, 2021 No.138 «On approval of the Methodology for the distribution of administrative public positions of Corps «B» by functional blocks» // Information and legal system of normative legal acts of the Republic of Kazakhstan «Adilet». – URL: https://adilet.zan.kz/rus/docs/V2100023964.
175. JSC «Economic Research Institute.». Analytical report on improving methods and processes of project management in the field of public administration – Nur-Sultan – 2021.
176. Transforming tradition: the Project Management Office // Deloitte. A Middle East Point of View. Spring2020. URL: https://www2.deloitte.com/content/dam/Deloitte/.
177. McKinsey Global Surveys, 2021: A year in review // McKinsey & Company. December 2021.
https://www.mckinsey.com/~/media/mckinsey/featured%20insights/mckinsey%20global%20surveys/mckinsey-global-surveys-2021-a-year-in-review.pdf
178. Decree of the Government of the Republic of Kazakhstan No. 358, dated May 31, 2021 «Rules of the implementation of project management » // Information and legal system of normative legal acts of the Republic of Kazakhstan «Adilet». – URL: https://adilet.zan.kz/rus/docs/P2100000358
179. Order of the Ministry of National Economy «On approval of the Type reglament for project management of government bodies» No. 57, dated June 8, 2021 // Information and legal system of normative legal acts of the Republic of Kazakhstan «Adilet». – URL: https://adilet.zan.kz/rus/docs/V2100023023

APPENDIX A

Questionnaire «Assessing the project management maturity of regional executive bodies»

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
БІЛІМ ЖӘНЕ ҒЫЛЫМ МИНИСТРЛІГІ
«Қ. И. СӘТБАЕВ АТЫНДАҒЫ
ҚАЗАҚ ҰЛТТЫҚ ТЕХНИКАЛЫҚ ЗЕРТТЕУ
УНИВЕРСИТЕТІ» КОММЕРЦИЯЛЫҚ ЕМЕС
АКЦИОНЕРЛІК ҚОҒАМЫ

СӘТБАЕВ
УНИВЕРСИТЕТІ

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ
РЕСПУБЛИКИ КАЗАХСТАН
НЕКОММЕРЧЕСКОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО
«КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ
ИССЛЕДОВАТЕЛЬСКИЙ ТЕХНИЧЕСКИЙ
УНИВЕРСИТЕТ ИМЕНИ К.И. САТПАЕВА»

050013, Алматы қ., Сәтбаев к-сі, 22 үй,
Тел.: 8(727) 320-40-01, факс: 8(727) 292-60-25
e-mail: info@satbayev.university

№ 02/373
«04» 02 2021

050013, г. Алматы, ул. Сатпаева, 22
Тел.: 8(727) 320-40-01, факс: 8(727) 292-60-25
e-mail: info@satbayev.university

Акимат Акмолинской области

Об участии в анкетировании

Институт Управления Проектами Казахского Национального Исследовательского Технического Университета имени К.И.Сатпаева (Satbayev University) проводит научное исследование по модернизации управления региональным развитием РК.

Исследование включает проведение анкетирования проектных менеджеров Проектных офисов Акиматов областей и городов республиканского значения (анонимный опрос проектных менеджеров).

Комплексный вопросник основан на модели P3M3 (Portfolio, Programme and Project Management Maturity Model, P3M3), разработанной компанией Axelos Limited в соответствии с методологией PRINCE2 и состоит из трех частей: изучение профиля респондентов, спрос на проектных менеджеров, оценка зрелости управления проектами. Модель P3M3 рассматривается как инструмент, необходимый организации для перехода к проектной форме управления.

Анкетирование позволит провести анализ текущего состояния управления проектами в Казахстане, а также сформировать предложения и рекомендации по повышению конкурентоспособности регионов и форсированному внедрению проектного менеджмента в стране.

Анкетное исследование проводится анонимно и результаты не подразумевают указания территориальной принадлежности респондентов.

В этой связи, просим оказать содействие в проведении анкетирования сотрудников Проектных офисов.

Ответы проектных менеджеров просим направить на электронную почту k.turkebayeva@stud.satbayev.university.

Приложение: анкета, на 4 листах.

Первый заместитель Председателя Правления – проректор по корпоративному развитию НАО КазНИТУ имени К.И Сатпаева **Б.З. Бармагамбетов**

Контактное лицо:
Туркебаева К.Т.
Моб.тел: 8 701 688 11 77
e-mail: k.turkebayeva@stud.satbayev.university

020940

Сауалнама (1-бөлім). Респонденттер профилі

1. Жобаларды басқару Сіздің жұмыс уақытыңыздың қанша пайызын алады?
- 0–24.
- 25–49.
- 50–74.
- 75–100.

2. Жобаларды басқару саласында сіздің жұмыс тәжірибеңіз қандай (жылдармен)?
- 0–5
- 6–10
- 11–15
- 16–20
- 20-дан астам

3. Сіз басқарған жобалардың орташа бюджеті қандай (қазақстандық теңгемен)?
- 1 млн. аз
- 1 – 4,9 млн.
- 5 – 9,9 млн.
- 10 – 99 млн.
- 100 млн. астам

4. Сіз басқарған жобалардың орташа ұзақтығы қандай (аймен)?
- 6 және одан аз.
- 7 – 12.
- 13 – 24.
- 25 – 36.
- 36 айдан астам

5. Сіздің орташа жалақыңыз қандай (қазақстандық теңгемен)?
- 100 мыңнан кем
- 101 – 199 мың
- 200 – 299 мың
- 300 – 399 мың.
- 400 – 499 мың
- 500 мыңнан жоғары

6. Біліміңізді көрсетіңіз
- Орташа немесе оның баламасы.
- Бакалавриат немесе оның баламасы.
- Магистратура немесе оның баламасы.
- Докторантура немесе оның баламасы.

7. Жасыңызды көрсетіңіз (жылдармен).
- 20 – 29.
- 30 – 39.
- 40 – 49.
- 50 – 59.
- 60-тан астам.

8. Жынысыңызды көрсетіңіз
- Еркек
- Әйел

9. Сіздің ұйымыңыз қандай мемлекеттік салаға жатады?
- Бизнес қызметтері (маркетинг, жарнама, қаржы және т.б.).
- Әскери / қорғаныс.
- ТКШ.
- Денсаулық сақтау және мәдениет.
- Ақпараттық технологиялар және программалық қамтамасыз ету.
- Консалтинг / тренингтер.
- Білім / ғылым.
- Мемлекеттік және қоғамдық.
- Инжиниринг және құрылыс.
- Өнеркәсіп.
- Сауда және қоғамдық тамақтану.
- Көлік және байланыс.
- Энергетика.
- Басқа (көрсетіңіз) _____.

10. Ұйымның орналасқан жерін көрсетіңіз.
- Нұр-Сұлтан қ.
- Алматы қ.
- Ақмола обл.
- Ақтөбе обл.
- Алматы обл.
- Атырау обл.
- Шығыс Қазақстан обл.
- Жамбыл обл.
- Батыс Қазақстан обл.
- Қарағанды обл.
- Қостанай обл.
- Қызылорда обл.
- Маңғыстау обл.
- Павлодар обл.
- Солтүстік Қазақстан обл.
- Түркістан обл.
- Шымкент қ.

11. Сіздің ұйымыңыздың штаты қандай (адам саны)?
- 50 және одан аз.
- 51–100.
- 101–500.
- 501–1000.
- 1000-нан жоғары.

Сауалнама (2-бөлім). Жобаларды басқару жөніндегі мамандарға сұраныс

1. Сіздің ұйымыңызда жобалық қызмет іске асырылады ма?
- Ия.
- Жоқ.

2. Сіздің ұйымыңызда жобаларды басқару бойынша мамандар үшін жеке лауазым бар ма?
- Ия.
- Жоқ.

3. Сіздің ұйымыңызға жобаларды басқару бойынша мамандар қажет пе, оларды (қосымша) жалдау қажеттілігі бар ма?
- Ия.
- Жоқ.

4. Сіздің ұйымыңызда 2020 жылға жоспарланған жобалар саны 2019 жылы іске асырылған жобалар санынан қаншалықты ерекшеленеді?
- 2020 жылы жобалар 2019 жылға қарағанда аз.
- 2020 жылы жобалар 2019 жылғыдай
- 2020 жылы жобалар 2019 жылға қарағанда көбірек
- 2020 жылы жобалар 2019 жылмен салыстырғанда едәуір көп

5. Сіздің ұйымыңыз ББ бойынша мамандар біліктілігіне қандай минималды талаптар қояды (екіден көп емес таңдаңыз)?
- Бакалавр дипломы.
- Магистр дипломы.
- Ғылым докторының (PhD) дипломы.
- Жобаларды басқару саласындағы сертификаттау.
- «Жобаларды басқару» мамандығы.
- Экономика және әлеуметтік ғылымдар саласындағы білім.
- Инженерлік-техникалық саладағы білім.
- Ақпараттық технологиялар саласындағы білім.
- Басқа (көрсетіңіз) _____.

6. Электрондық пошта мекен-жайын көрсетіңіз
_____

Сауалнама (3-бөлім). РjМ3 моделі ойынша жҚБ бағалау

1. Ұйымның жалпы сипаттамасы. Сіздің ұйымыңызға ең қолайлы сипаттаманы таңдаңыз.

a) Басқару процестері әдетте, құжатталмайды немесе жоқ, оларды басқару басшылықтың жеке қалауына сәйкес жүзеге асырылуы мүмкін.

b) Ұйымда арнайы білімі бар, соның арқасында ол өткен жетістіктерін қайталай алатын негізгі қызметкерлер бар. Алайда, міндеттердің нақты бөлінбеуі, қызметтің мақсаттары үшін белгісіздік пен сәйкессіздік байқалуы мүмкін.

c) Басқару және техникалық процестер құжатталады, олар стандартталған және ұйымның басқа бизнес-процестерімен біріктірілген. Жоғары басшылық басқаруға қатысады және оған белсенді қолдау көрсетеді.

d) Ұйымның қызметі басқарудың сандық әдістерінің көмегімен бақыланады. Компания сапа мен өнімділік саласында сандық мақсаттар қояды.

e) Ұйым негізінен сандық әдістер арқылы басқарылатын процестерді оңтайландыруға бағытталған.

2. Басқарушылық бақылау*. Ұйымыңыздағы басқару бақылауына сәйкес келетін сипаттаманы таңдаңыз.*

a) Жобаларды іске асыру және оларды басқару басшылықтың жеке қалауына сәйкес жүзеге асырылады.

b) Ұйым қызметкерлері ББ тұжырымдамасын түсінеді, компанияның өз сарапшылары, негізгі жобалармен жұмыс істейтін тәжірибелі жоба менеджерлері бар.

c) Ұйымда арнайы оқытылған қызметкерлердің барлық жобаларына қолданылатын жобаларды басқарудың тіршілік циклін орталықтандырылған және құжатталған тәсіл бар.

d) ЖБ ұйымдағы өзгерістерді басқарудың негізгі құралы болып табылады. Жоба аясында қызмет нәтижелерін өлшеу және талдау арқылы оны жүзеге асыру процесін жақсартуға баса назар аударылады.

e) Ұйымның мақсаттарына қол жеткізу үшін жалпыға бірдей қабылданған және ұйымға өзгерістер енгізу үшін оңтайлы болып саналатын жобалық тәсіл қолданылады.

3. Пайданы басқару. Ұйымыңыздағы пайданы басқаруға сәйкес келетін сипаттаманы таңдаңыз.

a) Ұйым белгілі бір дәрежеде алынған экономикалық пайда ұғымын (economic benefits) жоба нәтижелері тұжырымдамасынан (project outputs) өзгеше екенін түсінеді.

b) Экономикалық пайда ұйымдағы жобаларды іске асырудың қажетті элементі болып табылады.

c) Ұйымда жобаның нәтижелері болып табылатын экономикалық пайданы анықтауға және олардың іске асырылуын бақылауға арналған тұрақты құрылым бар. Бұл құрылымды басқару орталықтандырылған түрде жүзеге асырылады.

d) Экономикалық пайданы басқару жобаларды басқару жүйесіне енгізілген. Жобалардың нәтижелерімен анықталатын ұйымның тиімділігіне көп көңіл бөлінеді.

e) Экономикалық пайданы басқару өзгерістерді басқарудың ұйымдастырушылық тәсіліне енгізілген және ұйымдық стратегияның бөлігі болып табылады.

4. Қаржылық менеджмент. Ұйымыңыздағы қаржы менеджментіне сәйкес келетін сипаттаманы таңдаңыз.

a) Жоба деңгейінде қаржыны басқару, жобалардың шығыстары бойынша есептілік және олардың мониторингі жоқ немесе мүлдем жоқ.

b) Жобаның жалпы құны қадағаланбайды, ол бойынша есептілік жоқ.

c) Ұйымда жобаның тіршілік циклін қаржылық басқару үшін орталықтандырылған белгіленген стандарттар бар.

d) Ұйым қаржы қаражатының болуын ескере отырып, инвестициялық мүмкіндіктердің басымдықтарын тиімді айқындай алатын жағдайда.

e) Жеке жобаның қаржылық бақылауы ұйымның қаржылық бақылауына толық интеграцияланған.

5. Мүдделі тараптарды басқару. Ұйымыңыздағы мүдделі тараптарды басқаруға сәйкес келетін сипаттаманы таңдаңыз.

a) Мүдделі тараптарды тарту және олармен байланыс сирек жүзеге асырылады.

b) Кейбір жобаларда мүдделі тараптардың мүдделері ескеріледі, бірақ бұл ұйымда қолданылатын құрылымдық тәсілден гөрі жоба менеджерлерінің жеке бастамасы арқылы жүзеге асырылады.

c) Ұйымда мүдделі тараптарды жобаға тартуға және олармен байланысу үшін орталықтандырылған және құрылымдалған тәсіл қолданылады. Бұл тәсіл барлық жобаларды іске асыру кезінде қолданылады.

d) Мүдделі тараптарды талдау және жобаға тиімді тарту үшін арнайы әдістемелер пайдаланылады. Қол жеткізілген тиімділікті бағалаудың негізі сандық әдістер болып табылады.

e) Мүдделі тараптармен байланыс олар туралы кең білімнің арқасында оңтайландырылды, бұл жобалардың мақсаттарына қол жеткізуге ықпал етеді. Стейкхолдерлерді жобаға тарту және олармен жұмыс істеу процестерін үздіксіз жақсарту жөніндегі іс-шаралар жүзеге асырылуда.

6. Тәуекелдерді басқару. Ұйымыңыздағы тәуекелдерді басқаруға сәйкес келетін сипаттаманы таңдаңыз.

a) Ең аз жүзеге асырылады. Тәуекелдер құжатталады, бірақ оларды белсенді басқару жоқ.

b) Жобаларда пайдаланылады, алайда тәуекелдерді басқару тәсілдерінде тұрақсыздық байқалады, бұл оның тиімділігінің әртүрлі деңгейлеріне әкеледі.

c) Тәуекелдерді басқарудың ұйымдастырушылық саясатымен байланысты орталықтандырылған процеске негізделген; үнемі қолданылады.

d) Тиімді пайдаланылады, ұйымды басқару жүйесіне енгізілген.

e) Ұйымдастыру мәдениетіне енгізілген, жобалар шеңберінде шешімдер қабылдау негізінде. Ұйымда тәуекелдерді басқару процестерін үздіксіз жақсарту бойынша іс-шаралар жүзеге асырылады.

7. *Ұйымдастырушылық басқару.* Сіздің ұйымыңызда ұйымдастырушылық басқару қандай түрде жүзеге асырылатындығын көрсетіңіз.

a) Жобаларды бейресми басқару жүзеге асырылады, бірақ жобадағы рөлдердің нақты ресми анықтамасы жоқ.
b) Ұйымдастырушылық тұрғыдан жобаларды басқару қалыптаса бастайды. Рөлдер мен міндеттер жауапкершілік сызықтары сияқты тұрақты емес.
c) Орталықтандырылған ұйымдастырушылық бақылау барлық жобаларға қолданылады.
d) Ұйымдастырушылық басқаруға енгізілетін жоба шеңберінде шешімдер қабылдаудың ашық процестері бар. Жобаларды басқару міндеттері рөлдерді сипаттауға енгізілген.
e) Жауапкершілік бағыттары Директорлар кеңесінің деңгейіне дейін нақты қадағаланады, қызметкерлердің міндеттері нақты анықталған.

***8. Ресурстарды басқару*.** Ұйымыңыздағы ресурстарды басқаруға сәйкес келетін сипаттаманы таңдаңыз.

a) Жобаларды табысты іске асыру үшін ресурстарды тиімді басқару қажеттігі ресми түрде танылады.
b) Ұйымда ресурстарды бөлу осы тәсілді пайдалану кезінде оларды жоспарлауға және басқаруға тиісті тәсілге сәйкес жүзеге асырылады.
c) Ұйымда ресурстарды бөлу, жоспарлау және басқару үшін процедуралар мен басқару процестерінің орталықтандырылған жиынтығы бар.
d) Ресурстарды басқару ұйымның стратегиялық деңгейінде қаралады.
e) Ресурстар оңтайлы бөлінген. Ресурстарды басқару процестерін үздіксіз жақсарту бойынша іс-шаралар жүзеге асырылады.

9. Жобаларды басқарудың жалпы ұйымдастырушылық қабілетінің жетілуі. Сіздің ұйымыңызға сәйкес келетін сипаттаманы көрсетіңіз.

a) Компанияда жоба мен күнделікті қызмет арасындағы айырмашылық сезіледі. Жобалар белгілі бір стандарттарсыз, процестерсіз және бақылау жүйелерінсіз бейресми түрде жүзеге асырылуы мүмкін.
b) Әрбір жоба белгілі бір стандартқа сәйкес келетін процедура арқылы жүзеге асырылады.
c) Ұйымда орталықтандырылып бақыланатын жобаларды басқарудың өзіндік процестері бар.
d) Жобаларды басқару тиімділігі туралы деректер құжатталады және оның сапасын жақсарту үшін, сондай-ақ болашақ нәтижелерді болжау мақсатында пайдаланылады.
e) ЖБ процестерін үздіксіз жақсарту, сондай-ақ жобалардың тиімділігін өлшеу және процестерді оңтайландыру мақсатында проблемалар мен технологияларды проактивті басқару жүзеге асырылады.

APPENDIX B

Request on «Statistical data»
from Bureau of National Statistics
Agency for Strategic Planning and Reforms of the Republic of Kazakhstan

Кому: Департамент Бюро национальной статистики Агентства по стратегическому планированию и реформам РК по Кызылординской области
120000, Казахстан, г. Кызылорда

От: Институт управления проектами им. КазНИТУ им. К.И.Сатпаева

Запрос
на предоставление баз данных

Институт управления проектами Казахского Национального Исследовательского Технического Университета им. К.И. Сатпаева запрашивает данные для проведения научных исследований. Исследование включает в себя статистический анализ влияния МСП на экономический рост.

Запрашиваемые данные

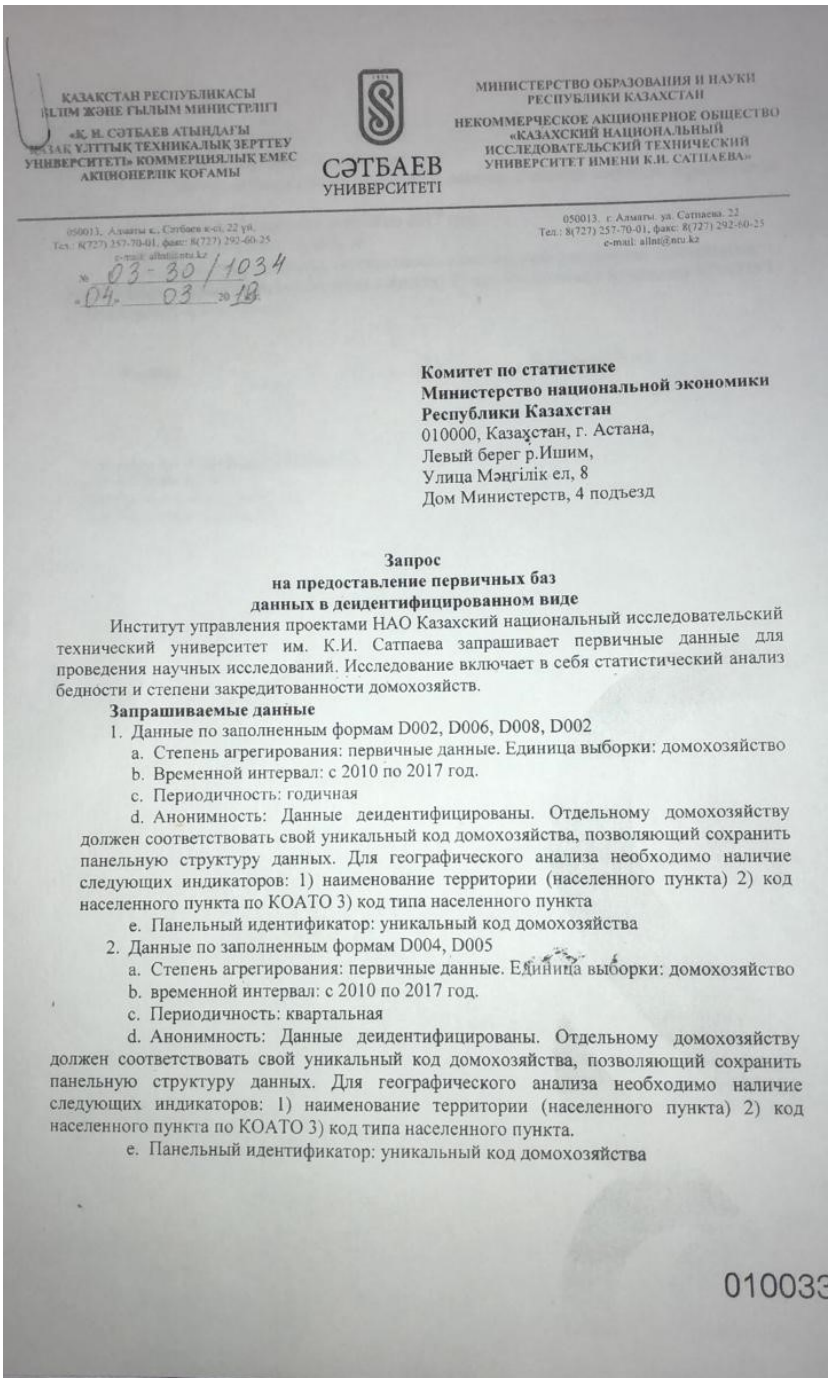
Количество зарегистрированных и действующих субъектов малого и среднего предпринимательства в Кызылординской области в разрезе районов с 2014 по 2019 год. Периодичность: годичная.

Директор
Института управления проектами **М. Субалова**

Сканировано с CamScanner

APPENDIX C

Request on «Statistical data»
from Bureau of National Statistics
Agency for Strategic Planning and Reforms of the Republic of Kazakhstan



ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
БІЛІМ ЖӘНЕ ҒЫЛЫМ МИНИСТРЛІГІ
«Қ. И. СӘТБАЕВ АТЫНДАҒЫ
ҚАЗАҚ ҰЛТТЫҚ ТЕХНИКАЛЫҚ ЗЕРТТЕУ
УНИВЕРСИТЕТІ» КОММЕРЦИЯЛЫҚ ЕМЕС
АКЦИОНЕРЛІК ҚОҒАМЫ

СӘТБАЕВ
УНИВЕРСИТЕТІ

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ
РЕСПУБЛИКИ КАЗАХСТАН
НЕКОММЕРЧЕСКОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО
«КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ
ИССЛЕДОВАТЕЛЬСКИЙ ТЕХНИЧЕСКИЙ
УНИВЕРСИТЕТ ИМЕНИ К.И. САТПАЕВА»

050013, Алматы қ., Сәтбаев к-сі, 22 үй.
Тел.: 8(727) 257-70-01, факс: 8(727) 292-60-25
e-mail: allnit@mail.kz

050013, г. Алматы, ул. Сатпаева, 22
Тел.: 8(727) 257-70-01, факс: 8(727) 292-60-25
e-mail: allnit@mail.kz

№ 03-30/1034
«04» 03 2018

Комитет по статистике
Министерство национальной экономики
Республики Казахстан
010000, Казахстан, г. Астана,
Левый берег р.Ишим,
Улица Мәңгілік ел, 8
Дом Министерств, 4 подъезд

Запрос
на предоставление первичных баз
данных в деидентифицированном виде

Институт управления проектами НАО Казахский национальный исследовательский технический университет им. К.И. Сатпаева запрашивает первичные данные для проведения научных исследований. Исследование включает в себя статистический анализ бедности и степени закредитованности домохозяйств.

Запрашиваемые данные

1. Данные по заполненным формам D002, D006, D008, D002
   a. Степень агрегирования: первичные данные. Единица выборки: домохозяйство
   b. Временной интервал: с 2010 по 2017 год.
   c. Периодичность: годичная
   d. Анонимность: Данные деидентифицированы. Отдельному домохозяйству должен соответствовать свой уникальный код домохозяйства, позволяющий сохранить панельную структуру данных. Для географического анализа необходимо наличие следующих индикаторов: 1) наименование территории (населенного пункта) 2) код населенного пункта по КОАТО 3) код типа населенного пункта
   e. Панельный идентификатор: уникальный код домохозяйства
2. Данные по заполненным формам D004, D005
   a. Степень агрегирования: первичные данные. Единица выборки: домохозяйство
   b. временной интервал: с 2010 по 2017 год.
   c. Периодичность: квартальная
   d. Анонимность: Данные деидентифицированы. Отдельному домохозяйству должен соответствовать свой уникальный код домохозяйства, позволяющий сохранить панельную структуру данных. Для географического анализа необходимо наличие следующих индикаторов: 1) наименование территории (населенного пункта) 2) код населенного пункта по КОАТО 3) код типа населенного пункта.
   e. Панельный идентификатор: уникальный код домохозяйства

010033

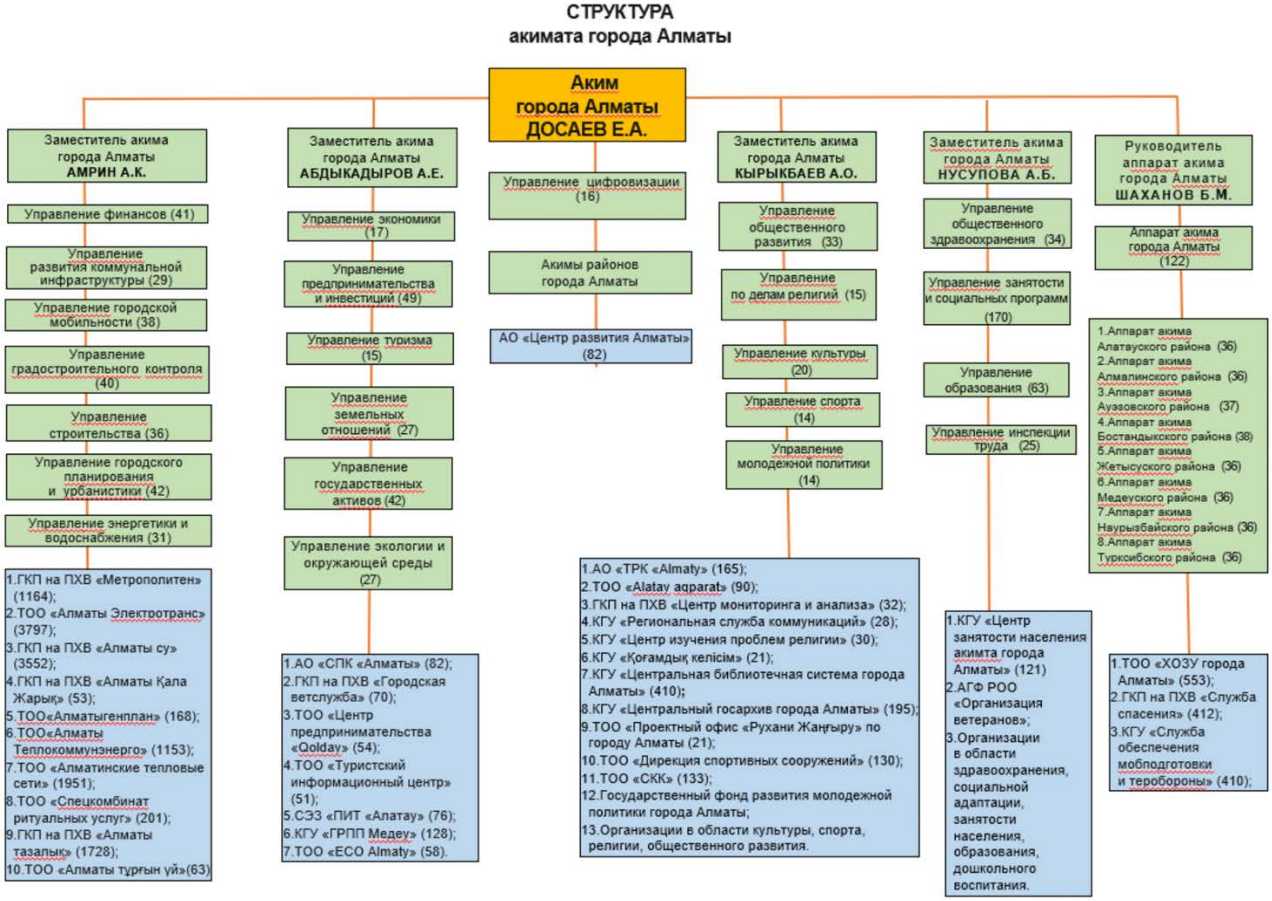
3. Данные по заполненной форме 2-связь.
   a. Степень агрегирования: первичные данные. Единица выборки: юридическое лицо
   b. временной интервал: с 2010 по 2017 год.
   c. Периодичность: годичная
   d. Для географического анализа необходимо наличие следующих индикаторов: 1) наименование территории (населенного пункта) 2) код населенного пункта по КОАТО 3) код типа населенного пункта.

Ректор И. Бейсембетов

Контактное лицо: Профессор Алдашев А.А.
Моб. тел: 8 708 901 07 71
E-mail: alisher.aldashev@gmail.com
a.aldashev@satbayev.university

APPENDIX D

Organizational structure of Almaty city



APPENDIX E

«ҒАЛЫМДАР ОДАҒЫ»
РЕСПУБЛИКАЛЫҚ
ҚОҒАМДЫҚ БІРЛЕСТІГІ
(КӘСІБИ ШЫҒАРМАШЫЛЫҚ
ОДАҚ)
050010, Алматы қаласы
Құрманғазы көшесі, 29 үй,
тел. +7 727 261-19-06

ҒАЛЫМДАР ОДАҒЫ

РЕСПУБЛИКАНСКОЕ
ОБЩЕСТВЕННОЕ ОБЪЕДИНЕНИЕ
«СОЮЗ УЧЕНЫХ»
(ПРОФЕССИОНАЛЬНЫЙ
ТВОРЧЕСКИЙ СОЮЗ)
050010, г. Алматы,
ул. Курмангазы , 29,
тел. +7 727 261-19-06

Акт
внедрения результатов диссертационного исследования
Туркебаевой Карины Толеуовны

Настоящим подтверждаем, что результаты и выводы диссертационного исследования Туркебаевой Карины Толеуовны на тему: «Региональное разнообразие, развитие и рост: на примере Казахстана, проектный подход» обладают актуальностью, представляют научный и практический интерес.

Материалы и данные исследования нашли применение в рамках проектов №BR05236639 «Казахстанский путь к наукоемкой экономике на основе третьей технологической модернизации: стратегия, модели и механизмы развития» (2018-2020 гг.) и №BR10965247 Исследование факторов, особенностей и динамики демографических процессов, миграции, урбанизации в Казахстане, разработка цифровых карт и прогнозов (2021-2023 гг.).

В данных проектах при определении современных тенденций развития городской и пространственной системы Казахстана были использованы следующие положения диссертации: исследование состояния экономического развития и проектного управления регионов Республики Казахстан, рассчитанные коэффициенты странового и межрегионального неравенства, динамика показателей неравенства и влияние на выгоды государственных программ и проектов, компаративный анализ национальных проектов и программ развития регионов, цифровизации и поддержки МСБ, оценка уровня зрелости проектного управления МИО страны.

Вице-президент
д.т.н., профессор,
академик КазНАЕН **Я.М.Узаков**