Журналдың негізгі тақырыптары – экономика, халықаралық қатынастар, қоғамның дамуының қаржылық, экономикалық, әлеуметтік-экономикалық және іскерлік аспектілері.

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AN OVERLAPLESS MATURITY MODEL
FOR CONFIGURATION MANAGEMENT

IT departments often encounter challenges due to overlapping practices from various frameworks, leading to unnecessary costs and inefficiencies. Additionally, Configuration Management (CM) processes are frequently implemented poorly, missing out on potential benefits. To address these issues, our research employs a Systematic Literature Review and Design Science Research methodology to develop a comprehensive and non-redundant CM Maturity Model. By integrating frameworks such as COBIT, ITIL, and CMMI-SVC, our model is designed to assist organizations lacking clear improvement strategies, those with inadequately implemented CM processes, or those seeking self-assessment. The model is also beneficial for companies managing multiple standards simultaneously. Managers can utilize this model to evaluate CM maturity before implementing various frameworks. Furthermore, we introduce the concept of "Quick Wins" to accelerate improvement initiatives. This research provides a practical tool for IT professionals to streamline CM processes and navigate the complex landscape of IT frameworks, ultimately leading to more efficient and effective CM practices.

Key words: Configuration Management Process, Maturity Models, IT Services Providers, Design Science Research.

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Конфигурация менеджментіне арналған
қабаттасусыз жетілу моделі

IT бөлімдері көбінесе әртүрлі негіздемелік стандарттардың тәжірибелерінің қиылысуымен байланысты қиындықтарға тап болады, бұл артық шығындарға, тиімсіздікке және процестердің қайталануына әкеледі. Сонымен қатар, конфигурациялармен менеджмент процестері (КМ) көбінесе тиімсіз жүзеге асырылады, бұл мүмкіндіктерді жіберіп алуға және ықтимал пайданың төмендеуіне әкеледі. Осы маңызды мәселелерді шешу үшін біздің зерттеуіміз МК жетілуінің кешенді және қайталанбайтын моделін жасау үшін әдебиет пен дизайн ғылымына жүйелі шолу әдістемесін қолданады. COBIT, ITIL және CMMI-SVC сияқты дәлелденген негіздемелік стандарттарды біріктіру арқылы біздің модель нақты жақсарту стратегиялары жоқ, нашар іске асырылған МК процестері бар немесе Мұқият өзін-өзі бағалауды жүзеге асыруға ұмтылатын ұйымдарға көмектесуге арналған. Сонымен қатар, бұл модель бір уақытта бірнеше стандарттармен және жақтаулармен жұмыс істейтін компаниялар үшін өте пайдалы. Менеджерлер бұл модельді әртүрлі негіздемелік стандарттарды енгізбес бұрын МК процестерінің жетілуін бағалау үшін тиімді пайдалана алады, бұл құрылымдық және дәйекті тәсілді қамтамасыз етеді. Сонымен қатар, біз «Жылдам жеңістер» тұжырымдамасын енгіздік, ол жақсарту процесін тез бастауға және МК процестерін жетілдірудің алғашқы кезеңдерінде нақты нәтижелерге қол жеткізуге мүмкіндік береді. Бұл зерттеу АТ мамандарына ат стандарттарының күрделі ортасында бағдарлауды жеңілдететін және конфигурацияны басқарудың тиімдірек және жетілген тәжірибелеріне нақты жол беретін МК процестерін оңтайландырудың практикалық және құрылымдық құралын ұсынады.

Түйін сөздер: конфигурацияны басқару процесі, жетілу үлгілері, АТ-қызмет провайдерлері, дизайн ғылымын зерттеу.

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Модель зрелости для менеджмента конфигурациями без перекрытий

IT-отделы часто сталкиваются с проблемами, связанными с пересечением практик различных рамочных стандартов, что приводит к избыточным затратам, неэффективности и дублированию процессов. Одновременно с этим процессы менеджмента конфигурациями (МК) зачастую внедряются неэффективно, что приводит к упущенным возможностям и снижению потенциальных выгод. Для решения этих критически важных проблем наше исследование использует методологию систематического обзора литературы и дизайн-науки для разработки комплексной и недублирующей модели зрелости МК. Путём интеграции таких проверенных рамочных стандартов, как COBIT, ITIL и CMMI–SVC, наша модель призвана помочь организациям, которые сталкиваются с отсутствием чётких стратегий улучшения, имеют плохо реализованные процессы МК или стремятся провести тщательную самооценку. Более того, эта модель особенно полезна для компаний, работающих с несколькими стандартами и рамками одновременно. Менеджеры могут эффективно использовать эту модель для оценки зрелости процессов МК перед внедрением различных рамочных стандартов, что обеспечивает более структурированный и последовательный подход. Кроме того, мы внедрили концепцию «Быстрые победы», которая позволяет быстро запустить процесс улучшений и получить ощутимые результаты уже на ранних этапах совершенствования процессов МК. Данное исследование предлагает ИТ-специалистам практичный и структурированный инструмент для оптимизации процессов МК, упрощая ориентацию в сложной среде ИТ-стандартов и предоставляя чёткий путь к более эффективным и зрелым практикам менеджмента конфигурациями.

Ключевые слова: процесс менеджмента конфигурациями, модели зрелости, поставщики ИТ-услуг, исследования методами дизайн-науки.

Introduction

In today's rapidly evolving environment, it is imperative for Information Technology (IT) organizations to align efficiently with consumer trends and preferences (Bianchi, 2023). The increasing centralization of IT infrastructures has amplified the role of IT organizations in business development and strategic decision-making (Amorim, 2020; Ertürk, 2015; Henriques, 2020). The presence of numerous internal dependencies and interrelations among systems and services provided by organizations (Bianchi, 2013) has resulted in more complex and extensive IT infrastructures. This complexity, coupled with growing IT system heterogeneity, exacerbates the burden of IT infrastructure management, leading to increased administration costs (Giese, 2010). In this critical landscape, efficient IT performance is essential, as mismanagement can lead to errors and subsequent failures, significantly affecting organizational profitability (Baiôco, 2009; Vanbrabant, 2013; Bianchi, 2019).

The rising value of IT within organizations has spurred significant advancements in the field. In an era where success depends heavily on client satisfaction, addressing client demands and exploring new business opportunities have become crucial. These dynamics have driven substantial progress in IT services, meeting both internal and external organizational client requirements (Ferreira, 2021; Johnson, 2007). The proliferation of service providers has allowed them to capture a significant share of the IT market, becoming increasingly integral to the global economy (Hashmi, 2010). This is further corroborated by the growing importance of digital transformation initiatives across industries (Vial, 2019).

IT services are developed and implemented on an infrastructure composed of thousands of components, ranging from software to hardware, which must be managed in alignment with organizational goals (Hashmi et al., 2010; Madduri et al., 2007). In this competitive and evolving technological landscape (Baiôco et al., 2009), it is crucial not only to manage infrastructure changes due to constant innovation but also to be aware of the risks and impacts these changes can have on the organization (Ali, 2013). Such changes significantly affect system compatibility and configurations, necessitating robust management to prevent service interruptions (Aleksic, 2010; Johnson et al., 2007). Recent studies also highlight the role of IT governance in mitigating these risks by establishing a clear framework for

decision-making and accountability (Weill, 2004; De Haes,2009).

Consequently, there is a need to implement processes that effectively manage the entire IT infrastructure's information (Madduri et al., 2007). Various solutions have been proposed to support this task, creating platforms that enable organizational collaboration in managing infrastructure information and changes (Yang, 2010). Recent studies have focused on the Configuration Management (CM) process and its feasibility as a critical component of IT service management frameworks like ITIL (Information Technology Infrastructure Library) (Axelos, 2019; Jäntti 2019).

The importance of the CM process has been growing (Ali, 2015; Tocto-Cano, 2020), providing essential information to various stakeholders within enterprises (Baiôco et al., 2009; Wang et al., 2022). CM has evolved as a distinct discipline, primarily responsible for managing changes to maintain quality and reduce organizational costs (Fowler, 1996; Lee, 2019). However, to be effective, CM requires both technical and organizational support (Tellioglu, 1996). Despite its critical role, CM is often misunderstood and undervalued by strategic management (Ali, 2013; Limpeeticharoenchot, 2022; Shah et al., 2012). Poorly implemented CM processes can lead to equipment failures or service disruptions, increasing costs and decreasing organizational effectiveness (Choi, 2001). Nonetheless, many industries still struggle with CM implementation (Ali, 2015; Gökalp, 2022). Various authors have proposed best practices, following different standards and frameworks, to enhance the effectiveness and efficiency of CM processes within organizations (Johnson et al., 2007; Serrano, 2020; Ward, 2007). However, as OGC (Office of Government Commerce) notes, the full benefits of these frameworks are only realized when properly integrated with the organization's overall IT strategy (OGC, 2009).

Many of these IT frameworks have been proposed and adopted to achieve organizational objectives (Pardo, et al. 2013). However, organizations often face challenges when implementing multiple frameworks and standards, as they must address "various difficulties, deficiencies, and needs that are not met by using only one methodology" (Gehrmann, 2012). The overlap between these frameworks can become a significant issue, requiring organizations to implement and use several frameworks individually, which increases costs, time, and resource demands (Pereira, 2012; Vicente, 2013). Pardo et al. (2013) indicate that there is still a lack of solutions to address this overlap problem effectively.

To assess organizational practices, many organizations have adopted Maturity Models (MMs) (Haes & Grembergen, 2004; Patas et al., 2013; Uhrenholt et al., 2022), which have become increasingly significant in the IT industry. These models are used not only for evaluation but also for benchmarking and enhancing process capabilities (Proença, 2016). MMs assess an organization's capabilities by assigning a maturity level, representing a sequential path that guides improvement and situates the organization's capabilities within a hierarchical framework. Typically, these maturity levels are structured into five stages, each with specific procedures required to achieve that level (Antunes et al., 2014; Brooks et al., 2015; Carvalho et al., 2018).

However, MMs are often criticized for being too generic (Neff et al., 2014), overly broad (Patas et al., 2013), or not well-defined (Becker et al., 2009). Additionally, Pereira and Serrano (2020) compiled methodologies used by the scientific community to develop MMs, revealing a lack of consensus on a specific methodology. Moreover, most MMs do not adequately address the issue of overlaps, leading to challenges in their practical application (Lahrmann et al., 2011).

As mentioned earlier, IT infrastructures are becoming more critical and increasingly complex, necessitating better control of these environments. Implementing the CM process by "following" the best practices of frameworks can bring efficiency, effectiveness, and more control to an organization (Johnson et al., 2007; Ward et al., 2007). However, many best practices have been criticized for lacking clarity and being overly complex (Ali & Kidd, 2014). Nevertheless, the requirement to implement multiple frameworks and standards can increase costs and time for organizations, as they often overlap (Aguiar et al., 2018; Gehrmann, 2012; Pereira, 2012). Therefore, it is necessary for an organization to have a multiple-model CM approach to address the framework overlap issue. Given the current evidence and the lack of a model that can mitigate these issues, this research aims to create an overlapless Configuration Management Maturity Model (CMMM). To develop the overlapless model, this research adopted the Design Science Research (DSR) methodology, following the guidelines proposed by Becker et al. (2009). The structure of this research is as follows: the next section introduces the related work already developed. Section 3 outlines the research methodology adopted for this investigation. Section 4 details the design and development of the artifact. Finally, the concluding section presents a discussion of the findings and the resulting implications.

Literature review

Configuration Management and Maturity Model
Configuration Management (CM) is a quality-focused process that offers significant benefits by identifying changes and assigning responsibility to those who implement them, thereby maintaining the quality and integrity of services (Aleksandar Aleksic et al., 2010). Organizations in the service industry frequently undergo changes, necessitating a process that not only controls these changes but also maintains IT infrastructure integrity to enhance service development and provision. At the development level, CM can be an essential tool in project delivery strategy by reducing development time and minimizing risks or errors (Ali & Kidd, 2014), ultimately enhancing the quality of the final product (Fowler, 1996). This process serves as a core support tool for organizational operations by reducing delays in development and operations (Ali & Kidd, 2013). Additionally, many enterprises implement CM to ensure that their infrastructure complies with relevant legislation and policies (Baiôco et al., 2009).

The literature indicates that the CM process can deliver several benefits to an organization. It aims to reduce quality and compliance issues by providing critical information, increasing organizational capabilities and resources, and reducing risks. Properly implemented and monitored, CM can provide transparency, integrity, and greater control to enterprises, thereby enhancing service quality and client satisfaction. However, despite its importance, CM often does not receive adequate attention in strategic management (Ali & Kidd, 2013), as evidenced by the limited number of papers in high-quality journals and conference proceedings on the subject.

Poor or non-existent CM implementation can lead to service failures and performance deficiencies (Hashmi et al., 2010), increasing operational costs and reducing effectiveness and quality (Choi & Bae, 2001). Comparing the benefits of proper CM implementation with the losses from poor implementation underscores the importance of having a robust CM process and an improvement plan for organizations.

In immature organizations, processes are often improvised and implemented in an ad-hoc manner, making it challenging to derive benefits from them. Without a process improvement plan, achieving quality products becomes problematic. Conversely, mature organizations with constantly updated processes can achieve higher quality products and maintain better control over their projects and infrastructures (Reis, Mathias, & de Oliveira, 2017).

Maturity Models (MMs) can help immature organizations become more robust and sus-tainable. These tools support organizations by assessing their current process state and defining an improvement path (Achi et al., 2016). MMs help organizations adapt to their environment, become more agile (Mettler & Rohner, 2009), identify strengths and weak-nesses, and improve process quality (Achi et al., 2016), ensuring lower costs and quicker process execution (Hamel, Herz, Uebernickel, & Brenner, 2013).

Literature shows that MMs are being developed across various domains. In IT, these tools have contributed to creating best practices (Proença et al., 2013), aiding IT management (Curry et al., 2013). IT management practices are critical to IT business (Curley et al., 2008), necessitating these practices to reach their highest maturity level according to organizational objectives.

Using best practices following standards and frameworks in the IT service domain can significantly enhance organizational performance (Knahl, Bayro-Corrochano, & Hancock, 2013). Studies involving organizations that use frameworks like Capability Maturity Model Integration (CMMI) and Information Technology Infrastructure Library (ITIL) show that as process maturity levels increase, organizations experience more benefits and fewer issues, positively impacting business performance, profitability, and competitive leverage (Marrone & Kolbe, 2010, 2011; Salman, Daim, Raffo, & Dabic, 2018).Despite the benefits, the improvement process with MMs is slow and can take years to achieve a higher maturity level and realize the benefits (Jiang, Klein, Hwang, Huang, & Hung, 2004).

Considering the significant losses an organization may incur by undervaluing the Configuration Management (CM) process and the necessity to enhance this process through a strategic improvement plan, implementing a Maturity Model (MM) proves to be a viable solution. By analyzing the benefits and objectives of both the CM and MM domains, it becomes clear that the MM domain enhances the CM process by evaluating its current state and providing a structured improvement path, thereby transforming it into a robust and mature process. Consequently, the development of a Configuration Management Maturity Model (CMMM) based on established frameworks can serve as a crucial tool for organizations, delivering numerous benefits and mitigating the issues associated with an immature CM process.

Related Work
Configuration Management (CM) plays a crucial role in Information Technology (IT) and software

development processes. This research aims to develop a comprehensive Configuration Management Maturity Model (CMMM) grounded in widely recognized IT frameworks. Despite the limited number of Maturity Models (MMs) following this approach, this chapter presents similar MMs developed by the scientific research community to date.

Niknam et al. (2013) addressed the absence of roadmaps guiding organizations in assessing their CM process maturity level by developing a CMMM within the Product Lifecycle Management (PLM) domain. Their model evaluates CM process maturity in scientific facilities, helping identify gaps and improve processes. Through state-of-the-art analysis and examination of current maturity models and standards, they identified critical CM activities and dimensions, resulting in a final MM with four maturity levels (Niknam et al., 2013).

In the medical device industry, Caffery and Coleman (2007) developed a MM to address compliance with directives and the necessity for maintaining historical records of software components used in device development. Their research compared medical device regulations with best practices in the CM process area of the CMMI model, resulting in a MM with five maturity levels (Caffery & Coleman, 2007).

Given the scarcity of CM-specific MMs, this chapter also explores various MMs with similar approaches. Pereira and Mira (2010) developed a MM to assist organizations in assessing their

ITIL implementation and creating an improvement roadmap. Based on the IT Service Capability Maturity Model (ITSCMM) and the Capability Maturity Model Integration for Services (CMMI-SVC), their model features both continuous and staged models with five maturity levels each (Pereira & Mira, 2010).

Lã (2011) developed a MM to help IT service providers analyze their IT service strategy by relating IT management practices with IT service management (ITSM) practices. This model integrates the COBIT, ITIL, and CMMI frameworks and comprises five maturity levels (Lã, 2011).

Machado et al. (2012) created a MM compliant with ISO/IEC 20000, CMMI-SVC, the Brazilian program Melhoria do Processo de Software Brasileiro (MPS.BR), and ITIL practices. Their model, aimed at supporting IT service providers in improving IT service management, features seven maturity levels (Machado et al., 2012).

Niessink and van Vliet (1998) developed a MM focusing on service providers, aiming to help organizations assess their capabilities and provide a service capability improvement path. Based on the CMM, this model includes five maturity levels (Niessink & van Vliet, 1998).These various MMs demonstrate the ongoing efforts in the scientific community to address maturity assessment and improvement in different IT-related domains, providing valuable insights for the development of a comprehensive CMMM.

Table 1 – Related Maturity Models Proposed in the Literature

Source	Scope	Area	Directed to	Methodology adopted	Guidelines Adopted	Frameworks overlap	Based on	Maturity Levels
(Niessink & Vliet, 1998)	Services	IT organizations	Management practices overall	Ad-Hoc	Ad-Hoc	Not applied	CMM	5
(Caffery & Coleman, 2007)	Software	Medical devices industry	CM process	Ad-Hoc	Ad-Hoc	Not applied	CMMI	5
(Rúben Pereira & Mira, 2010)	Services	IT organizations	ITIL practices	Action Research (AR)	Ad-Hoc	Not treated	ITSCMM; CMMI-SVC	5
(Lã, 2011)	Services	IT organizations	Management practices overall	Ad-Hoc	(Becker et al., 2009)	Not treated	COBIT, ITIL, CMMI	5
(Machado et al., 2012)	Services	IT organizations	Management practices overall	Ad-Hoc	Ad-Hoc	Treated	ISO/IEC 200, CMMI-SVC, MPS. BR, ITIL	7

Source	Scope	Area	Directed to	Methodology adopted	Guidelines Adopted	Frameworks overlap	Based on	Maturity Levels
(Niknam et al., 2013)	PLM	Scientific facilities	CM process	Ad-Hoc	(Bruin, Freeze, & Rosemann, 2005)	Treated	CMMI, SPICE-BOOTSTRAP, PMMM, SECM. Quality and management standards: IAEA, ISO 9000-3, 12207, 9001, 10007:2003, EIA-649-B, MIL-STD-3046.	4
(João Aguiar, Pereira, Vasconcelos, & Bianchi, 2018)	Services	IT organizations	IM process	DSR	(Becker et al., 2009)	Treated	ITIL, COBIT, CMMI	5
Note – compiled by the authors								

On the other hand, the research (João Aguiar, Pereira, Vasconcelos, & Bianchi, 2018) created an overlapless MM, focused on IT service management, more precisely on the Incident Management (IM) process. This MM was developed by eliminating all the overlapped IM process activities of the ITIL, COBIT, and CMMI frameworks. The MM has the objective of helping organizations to assess their IM process. This model consists of five maturity levels.

These are the MMs created by the scientific research community that are most related to this research scope. The summary of the MMs characteristics is visible in Table 1. Despite the fact that two MMs already exist for the CM process, they do not have the scope on IT Services and are not concerned with the framework's overlap problem. To this day, no articles of any MM creation that take aim of these concerns were found. Nevertheless, models were found that have the focus on improving and assessing the practices of IT service providers, which demonstrates that IT services start to be an area of concern, especially the consideration that process's improvement is an important strategy that IT service providers should implement.

Given that no MM for CM processes has been discovered that solves the above listed difficulties, the development of this model can contribute to the scientific community by assisting IT providers in «adding value» to their CM processes. This methodology can help IT firms evaluate their CM process and design an improvement route that leads to increased profit and improved control over their IT infrastructure. Because the construction of this model solves the overlap problem of numerous frameworks, this MM can assist to reduce the expenses associated with the need to apply various frameworks in order to comply with environmental legislation and politics.

Following Table 1, the investigation ('An Overlapless Incident Management Maturity Model for Multi-Framework Assessment (ITIL, COBIT, CMMI-SVC)', 2018) was the most "completed" in terms of methodology adoption, since the guidelines and the methodology were both established and described by the authors. The Becker et al. (Becker et al., 2009) guidelines are instructions specific to develop MMs. The DSR methodology already aims to provide generic steps to develop an artefact. It seems that the adoption of these methodologies can be possible and make the investigation more complete and sustained by the scientific «tools».

This research intends to follow the same approach done for the IM process, with the difference that the development of this MM focuses on the CM process. The explanation and review of both methodologies is described in next sections.

Methodology

This research decided to address the problem found by adopting the Design Science Research – DSR methodology (Peffers, Tuunanen, Rothenberg-

er, & Chatterjee, 2007), complemented with Becker et al. guidelines (Becker et al., 2009). This section reveals the methods and the methodology adopted to develop the artefact.

Design Science Research

Design is a fundamental process to the Information Systems (IS) domain, by helping IS professionals create artefacts, with a view of improving the performance of the organization's business (March & Storey, 2008). The DSR methodology is becoming one of the most adopted methodologies in the IS domain, due to its flexibility in any area. In fact, this methodology is constantly evolving (Peffers et al., 2007), and is specialized for specific areas.

Hevner et al. (Hevner et al., 2004) defined the DSR as the creation and evaluation of artefacts, with the intention of solving the identified organization's problems. The author Marian Carcary (Carcary, 2011) established this methodology as "a problem-solving paradigm that involves building and evaluating innovative artefacts in a rigorous manner". The IT artefacts can be characterized as constructs, models, methods, and instantiations (Herselman, Botha, & Meraka, 2015). Shortly, the DSR is a methodology that aims to create an artefact in order to solve an identified problem. This research decided to adopt the DSR Process Model created by Peffers (Peffers et al., 2007), as the research methodology . This methodology is composed of six activities.

Becker Guidelines

Becker et al. guidelines (Becker et al., 2009) are descendant of the DSR methodology since for the development of this procedure model, they are based on the seven guidelines of the DSR established by Hevner et al. (Hevner et al., 2004). These "instructions" are very flexible in terms of domain application since they were adopted in diverse areas, despite being created for IT management domain. As DSR is an iterative cycle of development, these guidelines determine that the development of a MM is made consequently by improvement iterations. Becker instructions are composed of eight phases.

Design Science Research and Becker Guidelines

DSR has the objective to create an artefact. In the manner that this methodology is designed, a priori, the artefact design or the type of artefact to create is not known. On the other hand, Becker methodology is exclusively to develop MMs, knowing at the beginning which artefact to develop (Becker et al., 2009). Several steps of both methodologies are the same since Becker et al. instructions are descen-

dant of DSR methodology. However, with the facts referred and in the point of view and interpretation of this research, the conjunction of both methodologies makes perfect sense: the Peffers methodology as the main methodology, and Becker et al. guidelines (Becker et al., 2009) as the "practical steps" of the artefact development. This approach can be compared with layers, where the DSR methodology is the first layer (main) and the guidelines are the second layer (subordinate). For a better understanding of the approach, Figure 3 shows the relation between them.

By observing Figure 3, it is visible that both methodologies can be integrated into each other, being the Becker guidelines more practical than the DSR methodology of Peffers. However, some adaptations of the methodologies for this investigation needed to be made:

- Peffers methodology defines two "types of assessment": Demonstration and Evaluation. In the Demonstration phase, the MM should be tested in one or more instances of the problem. The second one, Ken Peffers defined that MM should be tested in a more complex environment by observing and measuring how the artefact can mitigate or solve the problem. Since this research opted to realize semi-structured interviews and the evaluation of the MM was performed in the middle of both phases, these steps were added;

- The same occurred with the "Implementation of Transfer Media" and "Evaluation" Becker guidelines phases. The evaluation of the MM and the results discussion will be in this section;

- The process iteration only happened from the phase Demonstration & Evaluation to the Design and Development, that is, the improvement process of the MM, just occurred in this direction.

With both techniques merged, the "final methodology" followed by this research contains eight steps, each of which is discussed in the corresponding section, as illustrated in Figure 1. The last phase will involve the publication of a scholarly article.

Design and Development

The Design and Development activity involves the definition of the artefact architecture and functionality such as its implementation. As mentioned before, this research adopted the Becker guidelines to create the artefact. In this chapter the practical process that this research took to develop the MM is described. Each section represents each phase of the Becker guidelines.
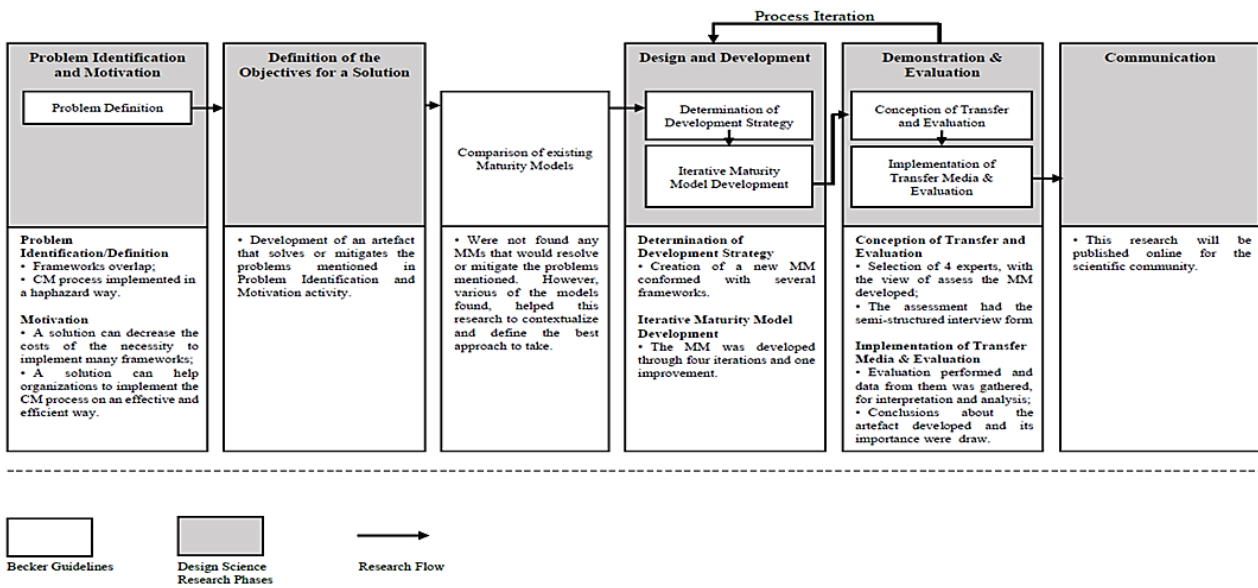
Figure 1 – Design Science Research Activities with Becker Guidelines Followed in this Research
Note – compiled by the author based on the source (Becker et al., 2009) and (Peffers et al., 2007)

Determination of Development Strategy

After the comparison between the MMs, it is imperative to establish a well-documented strategy for the development of the MM. Becker et al. (Becker et al., 2009) defends that three types of strategies exist: the development of a new MM design or the improvement of an existing one; the blending of several MMs into a new one; or the reallocation of the structures of contents into a new area. This research decided that for the development of the MM one of the strategies mentioned by Becker would be adopted. As described earlier, this investigation did not find any MM that would resolve the problems defined, so this investigation addressed the problem by developing a new MM.

To develop the MM, this research followed three frameworks: COBIT 5, CMMI-SVC 1.2 and ITIL v3. These frameworks were chosen since they address the service domain and are the most known in the market (Baiôco & Garcia, 2010; Na-Lampang & Vatanawood, 2016). Therefore, the strategy established was the creation of a new model that would be conformed with the COBIT, CMMI-SVC, ITIL frameworks and that would address the overlap problem.

Iterative Maturity Model Development

Becker guidelines focus on an iterative process for the development of MMs, that is, for the creation of a MM it is necessary to improve this artefact multiple times, and the development of the MM is performed by iterations. This activity is the central phase, where the model is produced. The

MM creation was divided into fourth iterations: the first step was the process of understanding how the frameworks described the CM process, and the extraction of the process activities of each framework; at this point and along with all the activities extracted, the elimination of the overlapped activities was performed; after the elimination of the overlapped activities, the development of the MM proceeded with the activities classification; lastly, the final step was the definition of the classification criteria for the organizations assessment using the final MM. The flow of this process is perceivable in Figure 2.

First Iteration: Activities Extraction

The authors decided that the final MM would be constituted of practices in the form of a question that was called an "activity". An activity is a practice that represents what the final result of a CM process characteristic should have. The COBIT and CMMI frameworks have these activities explicit as a practice, structured in a perceptive and simple way. However, in ITIL it is different, the practices described are blended in the CM description, which difficulted the research work.

For all the considered frameworks, in order to structure all the activities, two "types" of activities were defined: the first type is defined as a single question, the second type is defined as multiple questions, where the main question is composed of several sub-questions. Each of those sub-questions is considered as an activity. These two types can be observable in Table 2.
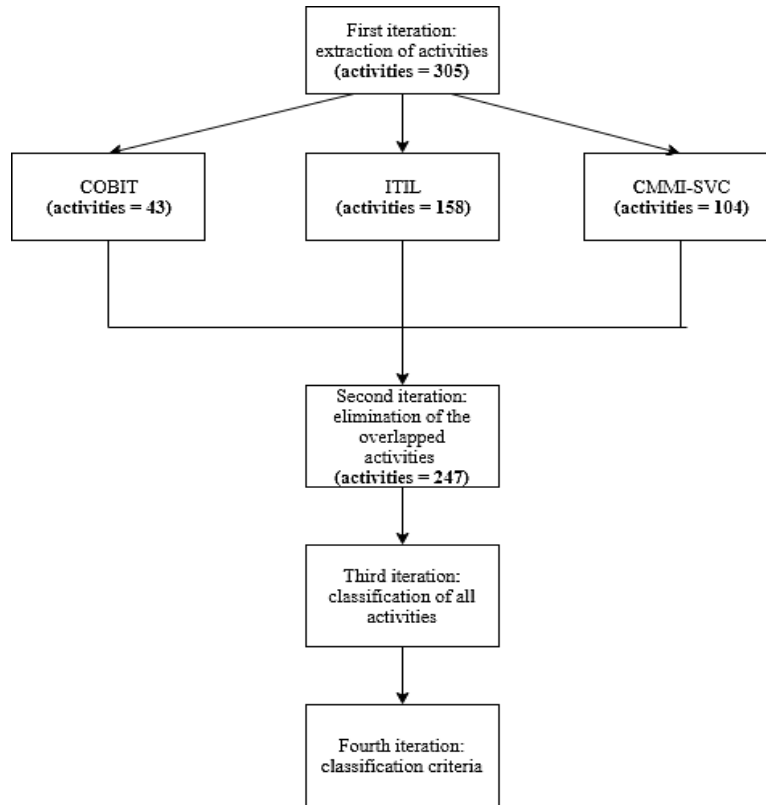
Figure 2 – Flow of the Maturity Model Development
Note – compiled by the authors

Table 2 – The Two Types of Question

Activity extracted from Frameworks	Assessment Question	Type	Number of Activities
Identify reporting requirements from all stakeholders, including content, frequency and media. Produce reports according to the identified requirements.	Are the reporting requirements from all stakeholders identified?	Single question	1
Establish Quantitative Objectives for the Process (Establish and maintain quantitative objectives for the process, which address quality and process performance, based on customer needs and business objectives.)	Are the quantitative objectives based on: • the client needs? • the business objectives?	Multiple questions	2
Note – compiled by the authors			

The extraction of activities from the frameworks was the first step taken. COBIT framework has 17 activities described, however, this research divided them into sub-activities, which generated 43 activities in total. The same process occurred with CMMI-SVC, composed of 79 activities and was sub-divided into 104 activities in total. With the ITIL framework, as above mentioned, the first step was different, it became an interpretative task since the description of the CM process is not explicitly divided by activities. From ITIL, 158 activities were extracted. In total, 305 activities were extracted from the frameworks.

Second and Third Iterations: Overlapped Activities Elimination and Activities Classification

With all the activities extracted it was necessary to eliminate those that were overlapped. In order to remove all the duplicated activities, an exhaustive comparison between all the activities of each framework was made. Those activities

which were similar were merged into one activity. An example of the elimination process can be seen in Table 3. Altogether, after the elimination, 247 activities remained which correspond to the elimination of 19% of the total activities (58 activities were merged).

Table 3 – Elimination of the Overlapped Activities

COBIT	ITIL	CMMI-SVC	Final Activity
-	Are the CIs uniquely identified?	Do configuration items have a unique identifier?	Are the CIs uniquely identified?
Is a logical model for configuration management established and maintained?	Is a logical configuration model, representing the relationships between configuration items, established?	Are the relationships among configuration items specified?	Is a logical configuration model, representing the relationships between configuration items, established and maintained?
Are the CIs populated in the repository?	-	Are the configuration items stored and retrieved in a configuration management system?	Are the CIs populated and retrieved in the repository?
Note – compiled by the authors			

Being this MM of the CM process area, the activities were not organized by dimensions, being this tool a non-dimensional MM. Thereafter, this investigation proceeded with the activity's classification stage. By classifying the final activities, the MM was completed. This step followed the Capability Maturity Model (CMM) described by the CMMI-SVC framework, which is composed of six maturity levels. The final MM is composed of six maturity levels in an ordinal order (from 0 to 5). With all the activities classified, the final distribution is as follows:

- Maturity Level 1: 137 activities;
- Maturity Level 2: 57 activities;
- Maturity Level 3: 43 activities;
- Maturity Level 4: 5 activities;
- Maturity Level 5: 5 activities.

Fourth Iteration: Classification Criteria

With the purpose of adapting this MM to the "practical environment" that IT Service Management is, it was necessary to have some considerations:

- All the organizations have different necessities, different environments and different objectives and plans;
- The MM is mostly composed of multiple question type, that is, the majority of the questions have sub-questions. This can bring a big dependency of several questions with the main question, which sometimes for different organizations this main question is not required and not useful to implement.

As previously explained, for a process to achieve a specific maturity level, it is necessary to implement all the activities of that specific level. However, considering all the circumstances mentioned above, this research decided that to achieve a particular maturity level, it was only necessary to implement 70% of the activities of that level. In terms of example, for a process to accomplish the level 1 is required only to implement 96 activities of the maturity level 1, if not implemented, the process will stay at level 0.

The chosen classification criteria (percentage of activities to implement) has not an empirical validation or a scientific criterion, however, it seems to this research that this number is a suitable percentage since that it is not too hard or too easy to achieve.

Maturity Model Improvement Iteration

Due to structural reasons of the methodology adopted, the modifications of the MM, that were provided by the interviews, are described in this sub-section. The improvements provided by the expert of the first interview were not just of the MM structure but also of the activities.

For better understanding, the improvements related to the activities' reformulation made to the MM are visible in Table 4. In total, 16 questions were changed. The support tool remained with 238 activities, which makes a total of 4% of activities reduction.

Table 4 – Actions Realized to Questions According to Feedback Provided

Action	Reason	Number of Questions Found
Elimination	The elimination questions occurred, due to the facts of: • Questions that are indirectly answered by other questions; • Ambiguous and redundant questions; • Questions that do not make sense; • Questions that are too generic.	9
Question Reformulation	The reformulation of questions was made to questions that were ambiguous but possible to improve. Except for one question that was joined with other.	7
Note – compiled by the authors		

The expert also supplied an improvement of the answer options. Initially, the questionnaire had three options, however, with the feedback provided two more options were included:

- Not applicable: The activity for the organization is not worth implementing due to the size and strategic objectives of the enterprise. In this instance, for the final classification, this question will not count as an activity to be implemented;

- No answer: The interviewee does not have the knowledge of whether the activity is implemented.

The elimination of activities ranged from level 1 and level 2 , being eight of the level of maturity 1 and the other of maturity level 2.

Results and discussion

After the development of the artefact, it was necessary to demonstrate and evaluate its usefulness and applicability. This chapter describes the performed demonstration and evaluation.

Conception of Transfer and Evaluation

In several occasions, in the MMs development area, researchers try to implement the MMs developed in the organizations, with a view of evaluating their artefact in practical circumstances and assessing the maturity of the organizations under study. However, in the context and environment where this investigation took place, it was difficult to find organizations that have adopted the CM process and make themselves available to perform this kind of evaluations.

With the purpose of assessing the artefact created, it was decided to use the MM in a questionnaire format, where the questions were the activities that MM is composed of, as described in the previous chapter. In the first version of the questionnaire, each question had three options:

- Yes: the activity is totally implemented;

- Partial: the activity is partially implemented, or the activity is merely applied a few times. In this case, by following the classification criteria explained earlier, for the final count of the activities implemented this activity will count as 0,5;

- No: the activity is not implemented.

In order to set this in practice, it was decided to adopt the semi-structured interviews for data collection and feedback.

Semi-structured interviews can be very flexible and appropriate for small scale researches. This kind of technique is used to gather beneficial information in bi-directional communication with the interviewed (Pathak & Intratat, 2012), despite that the interviewer has structured key questions prepared before the interview, to help guide and define the main areas to be explored (Gill, Stewart, Treasure, & Chadwick, 2008).

For this research, the semi-structured interviews were the most suitable method to provide a qualitative assessment of the MM, of either the structure or the activities quality.

From this perspective, since the objective was not to implement the MM in the organizations, as a main part of the researchers did, it was asked to the interviewees as they answered the questionnaire to supply an assessment of the questions, with the viewpoint of their organization or an organization they had worked at, with a CM process implemented, semi-implemented or with a plan for the implementation of this process. In the end, a sub-questionnaire was developed to evaluate the MM overall.

Implementation of Transfer Media & Evaluation – Organization A

In the first organization three semi-structured interviews were conducted, with three experts in the ITSM area. The information of the interviewed is visible in Table 5.

Table 5 – Experts Personal Information from Organization A

	Years of Experience in IT Area	**Years of Experience in ITSM Area**	**Organization Position**	**Industry Area**	**Experts in**
E1	28	15	IT Management	Banking	ITIL and CMMI
E2	25	4	Systems Analyst	Banking	ITIL
E3	30	7	Service Management	Banking	ITIL
Note – compiled by the authors					

The organization of these experts is from the banking area, which already has several processes implemented, providing a stable structure and services for their internal and external clients. The details of this organization are visible in Table 6.

The interviews had on average a 58 minute period of time. The longest interview took 92 minutes (1:32h) and the briefest took 40 minutes.

As already stated, until the artefact reaches a good maturity and a stable "version", it needs to be

Table 6 – Information of the Organization A

Industry Area	**Multinational Organization**	**Number of Organization Employees**	**Number of Organization IT Department Employees**
Banking	No	5000	150
Note – compiled by the authors			

Organization A – Demonstration

Organization A does not have the CM process formalized however, this enterprise gave internal priority to other processes, having a variety of activities related with the activities proposed by the process in study. The experts of this organization have extensive knowledge of frameworks like ITIL and CMMI.

Since the interviewed E1, E2 and E3 were from the same organization, in order to evaluate the enterprise maturity level, although not being the main objective, it was settled that the assessment process would follow the questionnaire of the interviewed E1, given that he has more years of experience in the ITSM area and has knowledge of more frameworks than the others.

The first interview was the one that took more time, for the simple reason that the questionnaire was in a "raw" state since no improvements had been made. Even so, the expert provided wide improvements to the MM, that are visible in Section 4.3. The E2 and E3 just provided feedback on the overall MM.

Considering that this enterprise does not have the process formalized already and is fragmented,

the maturity of the CM is at level 0. However, the organization has a plan defined and documented for performing the CM process. Due to the fact that the CM process is connected with other processes, following the MM proposed in this research, this enterprise has already implemented 71 activities completely applied. The distribution between the activities and the maturity levels are visible in Figure 3.

By looking at Figure 3, it is feasible to conclude that organization A is at its beginnings of the implementation of CM practices. In accordance with the classification criteria, the organization has 62 activities implemented (partial activities count as 0,5), which makes a total of 45% practices adopted of maturity level 1. Consequently, this enterprise, as mentioned before, is at level 0. The organization has, in total, 71 activities already implemented, and 11 practices partially implemented, which symbolizes nearly 30% of all activities. With all these practices already applied in the organization, it seems to be a good start and a robust "foundation" to begin the formalization and adoption of the CM process good practices.
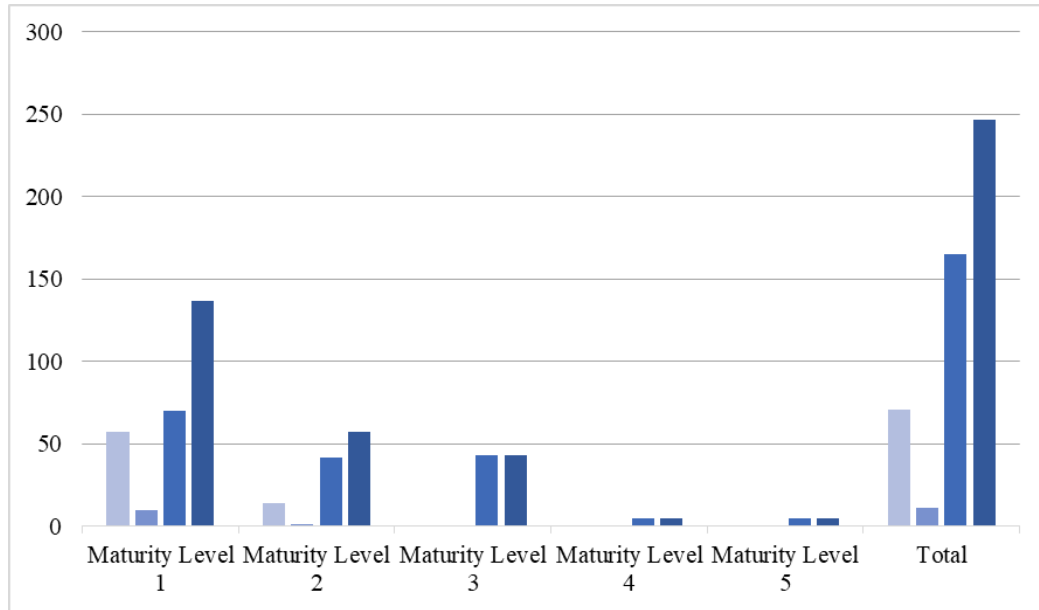
Figure 3 – Activities Already Implemented by Organization A
Note – compiled by the authors

Organization A – Evaluation

As previously stated, it was important to evaluate the MM, reflecting it in the questionnaire, since a range of companies was not found to implement the artefact created, and examine the medium and long-term benefits. In order to achieve this, the three experts answered the sub-questionnaire composed of three questions:

1. What do you think of the questionnaire, in terms of completeness ?;

2. If you were to implement a Configuration Management process, from 1 to 10 (1 = nothing; 10 = very useful), how much can the questionnaire help you ?;

3. In your opinion, which are the pros and cons one could face from applying this maturity model in a regular basis ?.

All the answers given to this sub-questionnaire are presented in Table 7.

The banking industry is evolving, beginning to have a wide budget to invest in IT infrastructures and services. For these experts, the utilization of this MM would be a great mechanism for companies that are initiating the implementation of the process, by creating a roadmap. The experts of organization A found the questionnaire useful and complete, allowing management to have a tool for decision support.

Table 7 – Answers of E1, E2, E3 experts given to the sub-questionnaire

Experts	Question 1	Question 2	Question 3	
			Pros	**Cons**
E1	Very Complete	9	Being very complete; Improvements identification; Decision support; Awareness of the process maturity.	Time-Consuming; Hard to identify the "Quick-Wins".
E2	Very Complete	8	Full management of CMDB; Contribution to the relations between other processes.	Can have higher cost if taken to the "extreme";
E3	Very Complete	7	Very detailed.	
Note – compiled by the authors				

The banking industry is evolving, beginning to have a wide budget to invest in IT infrastructures and services. For these experts, the utilization of this MM would be a great mechanism for companies that are initiating the implementation of the process, by creating a roadmap. The experts of organization A found the questionnaire useful and complete, allowing management to have a tool for decision support.

Despite that, the expert E1 considered the artefact as very time-consuming and hard to identify the benefits that a set of practices would provide to the organization, which this investigation considers as the main feature to be developed in the future.

The expert E2 finds this MM very complete and very detailed in the management of the CMDB. However, considers that if organizations fully applied this MM, it could bring risks and monetary costs. With the same opinion was the expert E4, who evaluates this MM as very detailed which has pros and cons, since the organizations would spend many resources to have this tool completely imple-

mented, but also this tool is very detailed, helping to easily guide through the process implementation and evaluation.

Although, it was explained that the organizations should view this MM as a tool to support their CM implementations to a certain level of maturity, considering their strategic objectives and the organization culture, and not to implement entirely if not necessary.

Implementation of Transfer Media & Evaluation – Organization B

After the assessments done by the experts from organization A, a fourth interview was conducted in a distinct enterprise. The chosen expert has a substantial understanding of the CM process and many years of experience. His information is visible in Table 8.

This expert's organization is from the IT area and has the CM process already implemented and consistent. The information of organization B can be seen in Table 9.

Table 8 – Expert Personal Information from Organization B

	Years of Experience in IT Area	Years of Experience in ITSM Area	Organization Position	Industry Area	Experts in
E4	-	17	Director	IT	ITIL
Note – compiled by the authors					

Table 9 – Information of Organization B

Industry Area	Multinational Organization	Number of Organization Employees	Number of Organization IT Department Employees
IT	Yes	100	800
Note – compiled by the authors			

The interview took 88 minutes (1:29h), where beyond the objectives established for the semi-structured interview, the state-of-art and the evolution of the CM process was also discussed.

Organization B – Demonstration

Organization B was in contrast with organization A, for having practices of all levels of maturity implemented. At this organization, the utilization of tools that somehow automate the activities of this process is a "priority". With the expert, the evolution that the CM took and the benefits of transferring the "control" to third-party tools was discussed. All the activities that are implemented, are visible

in Figure 4. The other two options of answer are not presented in Figure 4 since they were not chosen in any question.

By observing Figure 6, it can be declared that organization B has activities implemented through all the maturity levels. However, this organization is at level 1 of maturity with 74% of level 1 activities applied. It is visible that this organization has a more mature process since it does not have only 33 activities partially or totally implemented. Additionally, this enterprise has more than half the practices applied of each level maturity, standing out are levels 4 and 5 where organization B has 80% and 60%

of activities applied respectively. Which reveals that this company already has a big concern with this process, trying to optimize and measure it statistically.

Besides having a substantial awareness of the process, the organization does not have all the basic activities (Level 1 and Level 2), that are the base for a well-implemented process, applied. Nevertheless, the company has a considerable number of partial practices implemented, which are in a favorable position to easily improve the process itself.
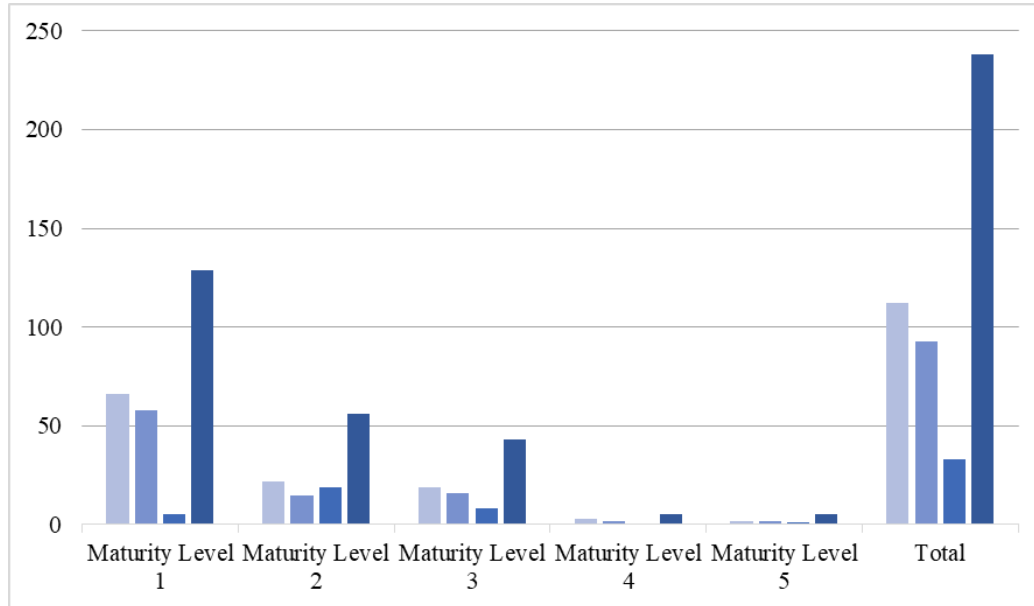
Figure 4 – Activities Already Implemented by Organization B
Note – compiled by the authors

Furthermore, with the support of the MM developed in this investigation, it is possible to visualize that organization B is applying the practices according to their necessities and objectives, not following necessarily a model, since the practices that are applied are spread through all levels. Eventually, this company has the process implemented in this manner due to the fact of having a significant reliance on automation and management tools.

Organization B – Evaluation

The expert from organization B was very critical, considering the MM as a tool that would not be useful for an organization that already has a process developed. The expert E4 finds this tool as too bureaucratic and out of date. In the IT environment, since technology is constantly evolving, many practices became outdated very quickly, which is not viable for organizations in this industry.

However, according to the opinion of the same expert, this MM would be a supportive tool for industries where the environment is composed of critical systems that could involve human life given that this artefact is too detailed and bureaucratic. The answers to the sub-questionnaire can be observed in Table 10.

Table 10 – Answers of the Expert E4 Given to the Sub-Questionnaire

Experts	Question 1	Question 2	Question 3	
			Pros	**Cons**
E4	Sufficient	3	Good mode for environments with critic systems that could involve human life.	Bureaucratic; Out of date.
Note – compiled by the authors				

Interviews Conclusions

Taking into account all the feedback provided by the experts, overall, only one interviewee pointed the MM as uncompleted. Mainly because the expert E4 believes that the information used to build the MM is outdated. The remaining experts find this MM as very complete and useful tool.

With the result of these interviews, the artefact developed can be characterized by three points of view:

- Organizations without a "clear idea" of what needs to be implemented or how to start and do not have a critical dependency of the IT development, this MM could be an excellent support tool to create an implementation and improvement roadmap;

- Being this artefact very detailed and descriptive, for companies with critical systems with very bureaucratic protocols to follow, this MM should be a good option to help have better control;

- For organizations that already have a process implemented and have an enormous dependency on their IT technology and operate only in IT industry, this MM maybe be out of date and inadequate to their necessities considering that the technology is evolving at a breakneck pace.

Although the MM, overall, received good feedback in the interviews, the evaluation had a lack of scientific criterion, since the suggested improvements of the first interviewee were not assessed by the others in a bi-directional discussion. In an attempt to mitigate as much as possible this lack of scientific rigor, several times in the interviews the experts were asked if they agreed with the improvements suggested by the other experts, in an informal way. In all interventions like that, all the experts agreed with the recommended optimizations.

Attending to the issues found and described in the chapter of the Introduction, apparently, to this research, the MM created may be useful in several environments, where the implementation of the process is in its beginnings, helping the organizations that have the process implemented in a haphazard way evolve the process to a "stable version". In terms of the frameworks overlap issue, this MM can help mitigate this problem in various situations, by extracting the best insights of each framework removing the necessity to implement several standards.

Conclusion

One of the main objectives of the organizations is to become self-sustainable by improving their capabilities in an economical manner. Hence, enterprises need to evaluate their current position to plan their proper investments in a strategic way, since the knowledge of the maturity level of an organization is important to its improvement and evolution. The value of the maturity concept is increasing in organizations being important to their development, coming to the point of being identified as a contingency factor for the adoption and improvement of governance structures in organizations. This shows that more knowledge in this area is important and more research in this domain is needed.

This investigation aimed to develop an overlapless MM for the CM process following several frameworks. This research decided that it would address the development by adopting the DSR as a research methodology. An analyzation of the COBIT 5, CMMI-SVC 1.2 and ITIL v3 frameworks was made and in total 247 activities were extracted with the elimination of the activities overlapped already realized. The creation of the MM was finalized with the classification of all activities through five levels of maturity.

With a view of evaluating the artefact created, four semi-structured interviews were conducted with four experts in ITSM domain. These interviews were realized with the purpose of assessing the MM by using a questionnaire formed by the MM. However, in only one interview were improvements to the questionnaire provided. The other three interviews contributed with overall questionnaire feedback, characterizing the questions as understandable and well designed.

With the feedback provided by the experts it was possible to conclude that:

- In IT organizations where their focus is the IT industry and already have a process implemented, this MM would not be a good fit as a support tool, being characterized as outdated and too bureaucratic;

- In organizations that do not already have a process, and have the necessity of an "implementation guide", this MM would be an excellent tool, not just for the implementation, but also for the creation of an improvement roadmap;

- In organizations that have critical systems and complex protocols, this artefact could be an excellent tool, since is very detailed and complete.

In conclusion, the artefact created can be useful in several environments, where the complexity of the management of IT infrastructures and assets increases. The MM can also assist organizations that do not have any idea of how to improve the process and companies that have the process applied in a careless way, and for CM process self-assessment.

Furthermore, it can be a feasible option for organizations that need to have several standards implemented.

For future work, a robust and thorough MM validation should be done, where the objective would be to measure the medium and long term benefits of the utilization and adoption of this artefact. This investigation also suggests the development of the "Quick-Wins" concept for this MM proposed by the first expert. Nevertheless, this research can be used as a reference point for new researchers that intend to develop new MMs.

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ENVIRONMENTALLY FRIENDLY CONSUMER BEHAVIOR
OF MILLENNIALS IN KAZAKHSTAN

This research explores the environmentally friendly consumer behavior of Millennials in Kazakhstan through a quantitative approach. The study targets the pressing issue of sustainable consumption practices among this generation, which holds significant implications for environmental conservation. This study is aimed at exploration of determinants, patterns, and motivations behind environmentally friendly consumer behavior among Millennials in Kazakhstan. It seeks to identify the main factors influencing their choices, the extent to which eco-consciousness guides their decisions, and the influence of external factors, such as marketing strategies and peer influence.

This research holds both scientific and practical significance contributing to the existing literature and offering insights into the emerging trends of green consumerism among Millennials in a Central Asian context. Moreover, it provides a quantitative assessment of the factors shaping their eco-friendly consumption, allowing for a nuanced understanding of their behavior. The research methodology involves the administration of structured surveys to a representative sample of Millennials in Kazakhstan. Data analysis performed with the use of such statistical methods as regression analysis and hypothesis testing to draw meaningful conclusions.

Preliminary findings suggest that while environmental awareness plays a role in Millennials' consumer choices, other factors such as affordability and convenience also significantly influence their behavior. The research underscores the need for targeted strategies to encourage more sustainable consumption practices among this demographic. In conclusion, this research contributes valuable insights into the environmentally friendly consumer behavior of millennials in Kazakhstan, shedding light on the factors driving their choices and serving as a basis for the development and implementation of effective sustainability campaigns. It has the potential to inform policymakers, marketers, and businesses seeking to align their strategies with the preferences of this eco-conscious generation.

Key words: millennials, environmentally friendly consumer behavior, Kazakhstan, sustainability.

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Қазақстандағы миллениалдардың экологиялық
таза тұтынушылық мінез-құлқы

Бұл зерттеуде сандық тәсіл арқылы Қазақстандағы миллениалдардың экологиялық таза тұтынушылық мінез-құлқы зерттеледі. Зерттеу қоршаған ортаны сақтауға айтарлықтай әсер ететін қазіргі ұрпақ арасындағы тұрақты тұтыну тәжірибесінің өзекті мәселесін қарастырады. Бұл зерттеудің мақсаты Қазақстандағы миллениалдар арасында экологиялық таза тұтынушылық мінез-құлықтың негізінде жатқан анықтаушы факторларды, модельдер мен уәждемелерді зерттеу болып табылады. Ол олардың таңдауына әсер ететін негізгі факторларды, экологиялық сананың олардың шешімдерін қаншалықты басқаратынын және маркетингтік стратегиялар мен құрдастарының әсері сияқты сыртқы факторлардың әсерін анықтауға бағытталған.

Бұл зерттеудің әрі ғылыми, әрі практикалық маңызы бар. Ол әдебиетте шектеулі көңіл бөлінген Орталық Азия контекстіндегі миллениалдар арасындағы жасыл тұтынушылықтың жаңа беталыстарының түсінігін ұсына отырып, білімнің жинақталуына үлес қосады. Сондай-ақ бұл олардың мінез-құлқын тереңірек түсінуге мүмкіндік беретін жасыл тұтынуды қалыптастыратын факторлардың сандық көрсеткішін береді. Зерттеу әдістемесі Қазақстанда миллениалдардың өкілдік іріктемесіне құрылымдық сауалнамалар жүргізуді көздейді. Деректерді талдау жиналған мәліметтер негізінде мағыналы қорытынды жасау үшін регрессиялық талдау және гипотезаны тексеру сияқты статистикалық әдістерді қамтиды.

Алдын ала қорытындылар мыңжылдықтардың тұтынушылық таңдауында экологиялық хабардарлық рөл атқарғанымен, қол жетімділік пен ыңғайлылық сияқты басқа факторлар да олардың мінез-құлқына айтарлықтай әсер ететінін көрсетеді. Зерттеу осы демографияның тұрақты тұтыну тәжірибесін ынталандыру үшін мақсатты стратегиялардың қажеттілігін атап көрсетеді. Қорытындылай келе, бұл зерттеу Қазақстандағы миллениалдар тұтынушыларының экологиялық таза мінез-құлқы туралы құнды түсініктерге ықпал етеді, олардың таңдауына әсер ететін факторларға жарық түсіреді және тиімді тұрақтылық науқандарын дамыту үшін негіз ұсынады. Оның саясаткерлерді, маркетологтарды және өз стратегияларын осы экологиялық саналы ұрпақтың қалауларына сәйкестендіруге ұмтылатын бизнесті хабардар ету мүмкіндігі бар.

Түйін сөздер: миллениалдар, экологиялық таза тұтынушылық мінез-құлық, Қазақстан, тұрақты даму.

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Экологичное потребительское поведение миллениалов в Казахстане

В данном исследовании с помощью количественного метода изучается экологичное потребительское поведение миллениалов в Казахстане. В исследовании рассматривается актуальная проблема ответственного потребления среди представителей этого поколения, что имеет большое значение для защиты окружающей среды. Цель исследования – изучить определяющие факторы, моделей и мотивов экологичного потребительского поведения среди миллениалов в Казахстане. Исследование направлено на определение основных факторов, влияющих на выбор миллениалов, уровня экологической сознательности, которой они руководствуются при принятии решений, а также влияния внешних факторов, таких как маркетинговые стратегии и влияние сверстников.

Исследование имеет как научное, так и практическое значение. Оно вносит вклад в совокупность знаний, позволяя получить представление о возникающих тенденциях экологизации потребления среди миллениалов в Центральной Азии, чему в печатных материалах уделяется мало внимания. Кроме того, в исследовании дана количественная оценка факторов, формирующих культуру экологичного потребления миллениалов, что позволяет лучше понять их поведение. Методология исследования предполагает проведение структурированных опросов миллениалов в Казахстане по репрезентативной выборке. Анализ данных включает в себя такие статистические методы, как регрессионный анализ и проверка гипотез, позволяющие сделать значимые выводы на основе собранных данных.

Предварительные результаты показывают, что, хотя информированность об экологических проблемах и влияет на потребительский выбор миллениалов, другие факторы, такие как доступность и удобство, также значительно воздействуют на их поведение. Исследование подчеркивает необходимость разработки целевых стратегий, направленных на поощрение более ответственного потребления в этой демографической группе. В заключение необходимо отметить, что данное исследование позволяет получить ценные сведения об экологичном потребительском поведении миллениалов в Казахстане, пролить свет на определяющие их выбор факторы и создать основу для разработки эффективных кампаний в области устойчивого развития. Исследование может послужить источником информации для государственных деятелей, участников рынка и предпринимателей, которые хотят выстроить свои стратегии в соответствии с предпочтениями этого экологически осознанного поколения.

Ключевые слова: миллениалы, экологичное потребительское поведение, Казахстан, устойчивость.

Introduction

In recent years, global concerns about environmental sustainability have heightened, prompting individuals, organizations, and governments to reassess their behaviors and practices (Mohan, Robinson, Vodwal & Kumari, 2024). Among these environmental stakeholders, the millennial generation stands out as a demographic with significant potential to shape the future of sustainable consumption (Ruzgys, 2023). Millennials, usually defined as individuals born in a period between 1980s and mid-1990s, have come of age during a period marked by growing awareness of ecological challenges, climate change, and the consequences of unsustainable consumption (Kumar and Pandey

2023). The Republic of Kazakhstan, situated at the crossroads of Asia and Europe, represents a unique context for the study of environmentally friendly consumer behavior among millennials. While Kazakhstan has experienced rapid economic development in recent years, it also faces environmental challenges, such as pollution and resource depletion, which necessitate a shift towards sustainable practices (Tleubergenova et al., 2023).

In the past, consumers showed little awareness or interest in environmental issues. However, over the past few decades, a shift has occurred as both consumers and manufacturers have embraced the concepts of sustainable development and eco-friendly products (Minocha & Singh, 2024). Environmental concerns, however, are not new. As Smith (2010) pointed out in his research, guidelines for protecting the environment are found in ancient texts such as the Koran and the Bible. Although the concept of sustainable development has deep historical roots, interest in this topic has surged recently, driven by the growth of the social media and Internet technologies. Today, there is a notable trend of increasing environmental awareness. More and more people are becoming conscious about ecological problems, climate change, air pollution, and waste. Environmental concerns resulted in a growing demand for sustainable products (Dabija, Cheben & Lancaric, 2017). Consumers are concerned about ethical ways of consuming products, recycling, minimizing waste purchasing goods from ethical manufacturers. Purchasing eco-friendly products make consumers feel they make social impact to the community and the planet. According to the research of Joshi and Rahman (2015), consumers can lessen environmental risks by choosing eco-friendly products. These "green" products contribute to reducing waste, lowering carbon footprints, conserving natural resources, and saving energy. These products could be potentially be recycled benefiting several users before being fully utilized.

Moreover, there is a so-called "green consumerism" trend, which becomes a part of people's lifestyles. Nowadays consumers demand an ethical and environmentally friendly production process from the manufacturers or saving the planet's resources during the production. In simpler terms, eco-conscious consumerism refers to the creation, utilization of products and services with a focus on their positive impact on the ecology. From a business standpoint, sustainability has gained significance for corporations. They strive to develop products that are safer for the environment to cater to consumer demands. For instance, a popular clothing retailer,

Zara, has begun eliminating hazardous materials from its supply chain and adopting more energy-efficient practices, crafting garments from recycled materials. Such efforts by businesses cultivate a favorable brand image, encouraging consumers to support these "ethical" companies.

Moreover, there is a so-called "green consumerism" trend, which becomes a part of people's lifestyles. Nowadays consumers demand an ethical and environmentally-friendly production process from the manufacturers or saving the planet's resources during the production. Even as sustainable products gain popularity, many individuals still fail to align their actions with their positive attitudes towards the environment. This discrepancy has been examined by various researchers. For examples it was found that despite understanding the importance of environmental issues, people's behaviors often don't reflect this awareness. To effectively promote environmentally friendly products, marketers must delve into consumer behavior and specifically processes of making consumer decisions (Paul, Modi, and Petal, 2016). However, marketers have faced challenges in selling these products due to consumers' inconsistent desire for them. Past research suggests to explore consumers' readiness to adopt sustainable practices, their attitudes, and consumption habits.

This research is aimed at exploration of consumer behavior of Kazakhstani millennials in terms of environmentally friendly purchasing. The study's findings are expected to be a useful resource for practitioners in revealing insights into buying behavior of young Kazakhstani consumers. The main objective is to determine the factors influencing millennials' attitudes toward eco goods and services and how these factors affect consumer behavior. To accomplish this, quantitative research was conducted to collect relevant data and insights.

Literature review

Millennials encompass individuals born in a period between the 1980s and early 2000s. This group is often characterized as being more progressive, open-minded, and receptive to novel lifestyles. Growing up amid technological advancements, globalization, and economic fluctuations, millennials possess distinct behaviors and perspectives compared to previous generations (Naderi & Van Steenburg, 2018). Despite facing economic challenges, millennials exhibit a willingness to invest in environmentally friendly products, as highlighted in a study by Nielsen (2015). They demonstrate a heightened sensitivity towards environmental is-

sues and tend to favor socially responsible retailers that prioritize environmental conservation efforts. Research exploring millennials' eco-friendly consumer behavior reveals their strong inclination towards sustainability practices compared to older generations (Kwan & Lau, 2023). This inclination is often attributed to increased environmental awareness, facilitated by digital information access, and a moral imperative for ethical behavior (Deepika et al., 2023).

Further studies, such as the one by Squires (2019), illustrate millennials' preference for eco-conscious practices, such as patronizing green hotels and purchasing organic and locally sourced products. Businesses recognize marketing to millennials as a lucrative opportunity highlighting them as the most influential and consumption-focused generation in today's market. Projections indicate a substantial market opportunity of $54.3 billion for catering to millennial preferences (Lu, Bock & Joseph, 2013). Given their significant purchasing power, millennials wield considerable influence over the buying decisions of both their peers and parents. As such, attracting millennials has become imperative for businesses seeking to thrive in today's market landscape. As highlighted by Lu, Bock and Joseph (2013), millennials represent a very informed group of consumers. Therefore, it is reasonable to assume that their education will enhance their awareness of environmental issues and the benefits of being eco consumers. However, the extent to which millennials prioritize environmental friendliness remains contested. They prioritize quality, accessibility, and affordability (Naderi & Van Steenburg, 2018).

The Theory of Planned Behavior (TPB) was proposed by Ajzen and Fishbein to extent on the Theory of Reasoned Action (TRA). It offers insights into how individuals' behaviors can be influenced and changed over time. The TRA considers attitudes and subjective norms as predictors of intention. However, TPB provides a better explanation of consumer behavior towards green products in comparison with TRA (Setyawan et al., 2018). Similarly, empirical studies on eco-friendly product consumption have shown that TPB more effectively predicts purchasing intention in comparison with TRA (Paul et al., 2016). Specifically, TPB considers factors that influence an individual's intentions, which, in turn, drive behavioral change. Intention is seen as a measure of the motivational factors behind a behavior, indicating the level of effort a person plans to perform the behavior. Although some behaviors fit this model well, most are influenced by other factors, such as resources, time, skills. These factors collectively determine the extent to which people can control their actions (Ajzen, 1991). Under the TPB, it's proposed that individuals make decisions logically, influenced by their attitudes, societal expectations (subjective norms), and their sense of control over the behavior. These elements subtly underlie decision-making processes, though they're not always overtly considered. The stronger an individual's positive attitude, societal approval, and sense of control, the more they are willing to get engaged in the behavior. TPB breaks down beliefs into three types, namely outcomes of behavior, societal expectations, and those about factors facilitating or impeding the behavior. These beliefs respectively lead to perceived societal pressure, attitudes towards the behavior, and perceived difficulty or ease in performing the behavior. The impact of each on behavioral intention varies, with some situations being influenced by only one or a combination of these factors (Ajzen, 1991).

Attitudes involve evaluation, both positive or negative, of a specific behavior and are formed from personal feelings, thoughts, and predispositions towards elements in their environment. This bias influences reactions and actions towards the attitude object. In the case of eco-friendly products or services, there is a noticeable link between positive attitudes and the intention to buy across different cultures (Paul et al., 2016). Some studies show those who value ecological sustainability are more inclined to choose environmentally-friendly packaging (Birgelen, Semeijn & Keicher, 2009). Subjective norm can be explained as the societal pressure perceived by the person to engage in certain behaviors, shaped by an individual's understanding of what people who are important in their life would say or think about the behavior (Ajzen, 1991). This perception can greatly influence an individual's intentions, especially in marketing and consumer behavior scenarios (Paul et al., 2016). Perceived behavioral control demonstrates the level of easiness of performing a particular behavior. This perception is influenced by internal factors like personal skills and determination, as well as external resources and support. It has a direct effect on behavior; the more control people perceive they have, the more effort they'll invest in achieving their goals. This concept has been linked to intentions in several areas, including eco-friendly practices (Paul et al., 2016). While Theory of Planed Behavior was extensively applied to study attitudes and behaviors towards eco-friendly products, it's not without criticisms. For instance, its application to ethical consumer behavior has been questioned

due to its lack of emphasis on the affective, or emotional, aspects that influence ethical choices. There is also debate over the clarity of the relationship between beliefs and intentions (Nombulelo, 2021). Thus, Ajzen (1991) acknowledges that TPB can incorporate additional elements to better explain variations in intentions or behaviors.

Based on the literature review, the following hypotheses were stated:

Hypothesis 1a: Attitude to environmentally friendly products is related to behavioral intention to purchase.

Hypothesis 1b: Attitude to environmentally friendly products is related to adoption behavior.

Hypothesis 2a: Subjective norm is related to behavioral intention.

Hypothesis 2b: Subjective norm is related to adoption behavior.

Hypothesis 3a: Perceived behavioral control is related to behavioral intention to purchase.

Hypothesis 3b: Perceived behavioral control is related to adoption behavior.

Hypothesis 4: Behavioral intention is related to adoption behavior.

The conceptual model proposed in this study, as shown in Figure 1, is based on the Theory of Planned Behavior (Ajzen, 1991). According to the TPB model, social norms, attitudes, and perceived behavioral control affect consumer intentions and adoption behavior (Ajzen, 1991). Additionally, it is anticipated that behavioral intention will affect adoption behavior.
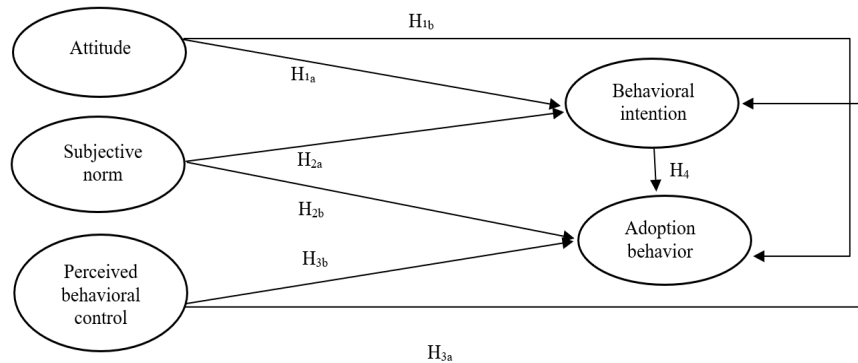

Figure 1 – Conceptual model
Note – this figure is completed by the authors based on the Theory of Planned Behavior (Ajzen, 1991)

Methodology

To address the research objective of this study, a quantitative approach was applied to investigate trends of Kazakhstani millennial consumers towards adopting environmentally friendly consumption patterns. A survey method was applied online for collecting data among millennials in Kazakhstan who are aware of eco-friendly products. Surveys are efficient for examining a variety of variables and require minimal time and cost to design and implement. Additionally, online surveys allow for quick outreach to individuals across different regions of Kazakhstan. Purposive sampling was implemented. The participants for the study were carefully chosen to meet the age criteria, ensuring their relevance to the research aims. Consequently, an online self-completion survey was administered via Google Forms. The survey remained open for four weeks, with an average completion time of 10 minutes. Par-

ticipants were briefed on the study's purpose before beginning the questionnaire. Researchers provided their email addresses for any questions or concerns, though no participants contacted them. To ensure confidentiality, respondents were not asked to provide their personal information.

The questionnaire comprised 27 questions, divided into two sections: four questions on demographic variables and 23 on behaviors related to eco-friendly products. Demographic part consisted of age, gender, employment, and income. In the second part, participants evaluated a series of statements using five-point rating scales validated in prior studies. The construct measures for "intention behavior," "adoption behavior", "attitudes," "subjective norms," and "perceived behavioral control" were adapted from past research (Chen & Tung, 2014; Emekci, 2019; Nekmahmud et al, 2022; Nombulelo, 2021; Wang et al., 2016). The questionnaire was tested using a pilot test with 5 respondents. The

results confirmed that the questionnaire design effectively supported the study's research hypotheses. The links to electronic questionnaire were sent out, yielding 152 responses, which met the target sample size requirement of 150. The survey data was downloaded from Google Forms. The raw data was cleaned and coded for further analysis. Descriptive analysis was used to summarize the demographic profile of respondents, while factor analysis determined the item loadings for each variable. Reliability was assessed by Cronbach's alpha coefficient and sampling adequacy by KMO. Final analysis was performed with multiple regression analysis.

Results and discussion

An online survey has generated 152 completed questionnaires. The sample characteristics are illustrated in Table 1.

Principal Component Analysis was used to perform Confirmatory Factor Analysis. Then sample was evaluated using Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO). Cronbach's alphas were calculated to ensure reliability. All items included in the questionnaire produced high loadings (greater than 0.5). The KMO values range between 0.72 and 0.84, confirming that the sample is adequate for analysis. The values of Cronbach's alpha were in a range from 0.74 to 0.87, demonstrating high degree of internal consistency within this sample.

Multiple regression analysis was conducted to identify factors influencing purchase intention and adoption. The results of the two regression models are presented in Tables 3 and 4. The proposed models demonstrated good fit, with R-squared values of 0.57 and 0.52. The results of this study revealed that attitude and PBC are significantly related to behavioral intention, while subjective norm is not significantly related to behavioral intention (see Table 3). For adoption behavior, attitudes, perceived behavioral control and subjective norm were significantly related to adoption (see Table 4).

Table 1 – Study sample characteristics

Characteristic	Categories	%	n
Age	Under 18	20.4	31
	19-20	40.8	62
	21-22	25.7	39
	23 and older	13.2	20
Gender	Male	37.5	57
	Female	62.5	95
Income	Below average	7.2	11
	Average	69.1	105
	Above average	23.7	36
Employment	Full-time	16.4	25
	Part-time	21.1	32
	Unemployed	62.5	95

Note – This table categorizes the participants by gender, age, employment status, and income levels. The table is prepared by authors.

Table 2 – Item loadings and reliability measures

Construct / Items	Loadings
Behavioral Intention (KMO 0.816 / Cronbach's alpha 0.87)	
I intend to buy eco goods because of environmental benefits.	0.842
For ecological reasons I consider switching to eco goods.	0.821
I expect buying eco goods in the future because of positive impact	0.886
I will be in favor of eco goods in my future purchases.	0.851
Adoption (KMO 0.764 / Cronbach's alpha /0.82)	

Construct / Items	Loadings
To buy eco goods I make a special effort.	0.831
Due to environmental benefits I have switched to buying eco goods.	0.794
I buy the ones that use less electricity and is less harmful to the environment when I have a choice between the same types of goods.	0.712
I undertake a special effort to buy eco goods.	0.884
Attitude (KMO 0.849 / Cronbach's alpha 0.84)	
In my opinion, eco goods are trustworthy.	0.805
For me it would be a good idea to buy eco goods.	0.817
For me it would be a worthwhile decision to buy eco goods.	0.797
My attitude towards purchasing the eco goods is favorable.	0.775
I prefer the eco versions, If I can choose.	0.723
Subjective Norms (KMO 0.756 / Cronbach's alpha 0.81)	
I would be admired if buying the environmentally friendly products.	0.832
I would have a good impression of me, if buying eco goods.	0.851
I would change for better the way I am perceived if buying eco goods.	0.851
I should buy eco goods because important to me people would expect that.	0.691
Perceived Behavioral Control (KMO 0.727 / Cronbach's alpha 0.74)	
I have money to buy eco goods.	0.719
I would buy eco goods, if it were entirely up to me.	0.577
I am capable of buying eco goods.	0.673
I possess financial resources to buy eco goods.	0.744
I have the time to buy eco goods.	0.704
Eco goods are available in the retail stores.	0.554

Note – Table 2 presents the factor analysis results of the study, indicating item loadings, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), and Cronbach's alpha for each construct used in the research. Construct measures were adapted from past research (Chen & Tung, 2014; Emekci, 2019; Nekmahmud et al, 2022; Nombulelo, 2021; Wang et al., 2016). This table was compiled by the author and is based on data analysis using SPSS software.

Table 3 – Regression Model 1

Independent Variables	Dependent Variable	Beta	t	Sig.
Consumer Attitudes	Behavioral intention	.449	5.898	.000
Subjective Norms	Behavioral intention	.055	.770	.443
Perceived Behavioral Control	Behavioral intention	.353	5.061	.000

Note – Table 3 was compiled by the authors based on the SPSS software output for multiple regression analysis.

Table 4 – Regression Model 2

Independent Variables	Dependent Variable	Beta	t	Sig.
Consumer Attitudes	Adoption behavior	.265	3.284	.001
Subjective Norms	Adoption behavior	.313	4.139	.000
Perceived Behavioral Control	Adoption behavior	.266	3.597	.000

Note – Table 4 was compiled by the authors based on the SPSS software output for multiple regression analysis.

Table 5 shows that H1a and H3a are supported. Specifically, both attitude (p=0.000) and PBC (p=0.000) are significantly related to behavioral intention. This finding supports Nombulelo's (2021) research, indicating individuals with positive type of attitudes and strong behavioral control have more chances to demonstrate eco behavior and Paul et al. (2016) finding that attitude is the main predictor of the intention to purchase green products seconded by perceived behavioral control. Hence, attitudes to behavior and perceived behavioral control are crucial in shaping the intention to make environmentally friendly purchases.

Furthermore, finding have not provided support of H2a that proposed that subjective norms are related to behavioral intention. The results show that subjective norms (p=0.443) do not significantly affect behavioral intention. This result is also consistent with findings of Paul et al. (2016), who found that subjective norms were a weak and non-significant predictor of purchase intention. Contrary to pre-vious studies that identified a positive link between subjective norms and behavioral intention, such as Eze et al. (2013), the current study finds no such association. This suggests that the approval of "significant others" may no longer be as influential in the decision to buy environmentally friendly products.

The results indicated that attitudes, subjective norms, and perceived behavioral control are significantly related to adoption behavior thus H1b, H2b, and H3b are supported. These findings are in line with results of Joshi and Rahman (2015), who found that PBC positively affects the adoption of eco products. Nevertheless, other researchers reported lack of correlation between PBC and adoption behavior (Nombulelo, 2021). Finally, this study confirms H4, by showing significant relationship between behavioral intention and adoption behavior, which posited that behavioral intention is related to adoption behavior. Overall, six out of seven hypotheses were supported, with only one hypothesis being rejected (Table 5).

Table 5 – Hypotheses testing results

Hypotheses	p-value	Result
Hypothesis 1a: Attitude to environmentally friendly products is related to behavioral intention to purchase.	0.000*	Supported
Hypothesis 1b: Attitude to environmentally friendly products is related to adoption behavior.	0.001*	Supported
Hypothesis 2a: Subjective norm towards environmentally friendly products is related to behavioral intention.	0.443	Rejected
Hypothesis 2b: Subjective norm towards environmentally friendly products is related to adoption behavior.	0.000*	Supported
Hypothesis 3a: Perceived behavioral control is related to behavioral intention to purchase.	0.000*	Supported
Hypothesis 3b: Perceived behavioral control is related to adoption behavior.	0.000*	Supported
Hypothesis 4: Behavioral intention is related to adoption behavior.	0.000*	Supported

Note – Table 5 was compiled by the authors based on the analysis of data using SPSS software. It presents the results of evaluating the influence of attitudes (ATT), subjective norms (SN), and perceived behavioral control (PBC) on behavioral intention (BI) and adoption behavior (AB) regarding the purchase of environmentally friendly products. The table lists each hypothesis, p-value, and the result (supported or rejected).
*Significant at p-value<0.05

Conclusion

The loss of biodiversity and escalating environmental concerns have prompted a societal shift towards environmentally friendly consumption practices. Consequently, an increasing number of manufacturers are producing eco-friendly products and exploring sustainable business practices. Although there has been a noticeable shift, earlier studies indicate that positive consumer attitudes towards environmental concerns frequently do not result in significant changes in consumption habits. Most consumers continue to overlook environmentally friendly products. Consequently, this research aimed to explore the factors that shape millennials' attitudes toward buying eco-friendly products. The quantitative findings underscore several factors that sustainable manufacturers can target to attain desirable adoption levels, primarily comprising elements of the Theory of Planned

Behavior (TPB), including attitudes, subjective norms, PBC, behavioral intention, and adoption behavior.

This study aimed to assess the use of the Theory of Planned Behavior in predicting millennials' intentions to purchase and adoption of eco-friendly products. The findings confirm and extend those of earlier studies (Chaudhary and Bisai, 2018; Nombulelo, 2021) that investigated consumer behavior related to environmentally friendly products using TPB. This research supports TPB, with the exception of the link between subjective norms and behavioral intention. Results indicate that only 6 out of seven independent variables are related to intentions to buy eco products. Specifically, while attitude and perceived behavioral control significantly impacted behavioral intention, subjective norms did not. This suggests that social norms are less influential in shaping millennial consumers' intentions to purchase green products, a finding consistent with Chaudhary and Bisai's (2018) study, which also found no effect of subjective norms on purchase intention.

The study revealed a strong connection between attitudes, subjective norms, and perceived behavioral control in altering consumption patterns toward eco-friendly products. The results represent a significant advancement in understanding consumer behavior in this area, given the challenges of predicting consumer determinants. By understanding the how attitudes, social norms and perceived behavioral control influence environmentally friendly consumer behavior among Millennials in Kazakhstan, practitioners can tailor strategies that encourage sustainable consumption patterns and promote eco-friendly products and services. This research empowers businesses, policymakers, and educators in Kazakhstan to align with the growing demand for sustainability, ultimately leading to a more resilient and green economy.

The study of environmentally friendly consumer behavior among Millennials in Kazakhstan is vital for fostering a culture of environmental responsibility in the region, however this study has several limitations. The purposive sampling was used to collect data. The future research can ensure a more representative sample and apply advanced statistical analysis. In addition, future research could compare millennials with other generations and conduct cross-cultural study.

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Appendix: Survey questions

The survey was administered online in April 2023. The survey was open for 4 weeks.

This survey is a part of academic research on "Environmentally Friendly Consumer Behaviour of Millennials in Kazakhstan". The survey will take approximately 15 minutes of your time. The data will be used only for academic purposes. Your participation is free-willed and your personal data will be fully confidential.

What is your gender?
a) Male
b) Female

What is your age?
a) Under 18 years old
b) 19-20 years old
c) 21-22 years old
d) 23 years or older

What is your employment status?
a)Full-time job
b)Part-time job
c)Unemployed

Please indicate your family income
a)Below average
b)Average
c)Above average

Please express the level of your agreement or disagreement with the statements listed below on a 5-point scale (1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree)

Behavioral Intention (adapted from Nekmahmud et al, 2022; Chen & Tung, 2014)
I intend to buy eco goods because of environmental benefits.
For ecological reasons I consider switching to eco goods.
I expect buying eco goods in the future because of positive impact
I will be in favor of eco goods in my future purchases.

Adoption (adapted from Chen & Tung, 2014)
To buy eco goods I make a special effort.
Due to environmental benefits, I have switched to buying eco goods.
I buy the ones that use less electricity and is less harmful to the environment when I have a choice between the same types of goods.
I undertake a special effort to buy eco goods.

Attitude (adapted from Emekci, 2019; Nekmahmud et al, 2022; Nombulelo, 2021)

In my opinion, eco goods are trustworthy.
For me it would be a good idea to buy eco goods.
For me it would be a worthwhile decision to buy eco goods.
My attitude towards purchasing the eco goods is favorable.
I prefer the eco versions, If I can choose.

Subjective Norms (adapted from Emekci, 2019; Nekmahmud et al, 2022; Nombulelo, 2021)

I would be admired if buying the environmentally friendly products.
I would have a good impression of me, if buying eco goods.
I would change for better the way I am perceived if buying eco goods.
I should buy eco goods because important to me people would expect that.

Perceived Behavioral Control (adapted from Emekci, 2019; Nekmahmud et al, 2022; Nombulelo, 2021)

I have money to buy eco goods.
I would buy eco goods, if it were entirely up to me.
I am capable of buying eco goods.
I possess financial resources to buy eco goods.
I have the time to buy eco goods.

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INSTITUTIONAL-LEGAL INTEGRATION
OF SOCIALLY VULNERABLE POPULATION INTO THE ECOSYSTEM
OF SOCIALLY ORIENTED ENTREPRENEURSHIP IN KAZAKHSTAN

This study examines the process and prospects of institutional integration of socially vulnerable segments of the population into the sphere of social entrepreneurship in Kazakhstan. The relevance of the topic is due to the need to develop effective mechanisms to solve social problems, increase employment and strengthen the social integration of these citizens.

The purpose of the study is to identify obstacles and formulate recommendations for optimizing the institutional environment to stimulate social entrepreneurship and improve the well–being of vulnerable groups. The article presents an analysis of legal integration into the ecosystem of social entrepreneurship in Kazakhstan and theoretical aspects of institutionalization of this sector. The scientific significance of the work lies in the establishment of causal relationships between the institutionalization of social entrepreneurship and its potential for the integration of socially vulnerable groups.

The analysis made it possible to identify key areas for improving the legislative and institutional environment, which contributes to a more effective integration of social entrepreneurship into the country's economy and improving the well-being of vulnerable segments. The assessment of the current state and prospects for the development of social entrepreneurship was carried out on the basis of an analysis of scientific publications, statistical data and materials of public organizations. Economic and mathematical models helped to identify the most significant factors affecting the development of the sector.

The contribution of the work is to prove the dynamism and variability of the institutional and legal process of integrating vulnerable groups of the population into the ecosystem of social entrepreneurship. The results of the study are of practical value and can be used to develop recommendations on creating a favorable environment for the development of social entrepreneurship and the integration of socially vulnerable groups into the economic structure of the country.

Key words: social entrepreneurship, socially oriented entrepreneurship, institutional-legal integration, social entrepreneurship ecosystem.

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Қазақстандағы әлеуметтік-бағдарланған кәсіпкерліктің
экожүйесіне әлеуметтік осал адамдарды
институционалдық-құқықтық интеграциялау

Бұл зерттеуде халықтың әлеуметтік осал топтарын Қазақстандағы әлеуметтік кәсіпкерлік саласына институционалдық интеграциялау процесі мен перспективалары қарастырылады. Тақырыптың өзектілігі әлеуметтік мәселелерді шешудің, жұмыспен қамтуды арттырудың және осы азаматтардың әлеуметтік интеграциясын күшейтудің тиімді тетіктерін әзірлеу қажеттілігіне байланысты.

Зерттеудің мақсаты-әлеуметтік кәсіпкерлікті ынталандыру және осал топтардың әл-ауқатын арттыру үшін институционалдық ортаны оңтайландыру бойынша кедергілерді анықтау және ұсыныстарды тұжырымдау. Мақалада Қазақстандағы әлеуметтік кәсіпкерліктің экожүйесіне құқықтық интеграцияны талдау және осы секторды институционализациялаудың теориялық аспектілері ұсынылған. Жұмыстың ғылыми маңыздылығы әлеуметтік кәсіпкерлікті институционализациялау мен оның әлеуметтік осал топтарды біріктіру әлеуеті арасында себеп-салдарлық байланыстар орнату болып табылады.

Талдау әлеуметтік кәсіпкерліктің ел экономикасына неғұрлым тиімді интеграциялануына және осал топтардың әл-ауқатын арттыруға ықпал ететін заңнамалық және институционалдық

ортаны жақсартудың негізгі бағыттарын анықтауға мүмкіндік берді. Әлеуметтік кәсіпкерліктің ағымдағы жай-күйі мен даму перспективаларын бағалау ғылыми жарияланымдарды, статистикалық деректерді және қоғамдық ұйымдардың материалдарын талдау негізінде жүргізілді. Экономикалық–математикалық модельдер сектордың дамуына әсер ететін маңызды факторларды анықтауға көмектесті.

Жұмыстың үлесі халықтың осал топтарын әлеуметтік кәсіпкерлік экожүйесіне интеграциялаудың институционалдық-құқықтық процесінің динамизмі мен вариативтілігінің дәлелі болып табылады. Зерттеу нәтижелері практикалық құндылыққа ие және әлеуметтік кәсіпкерлікті дамыту және әлеуметтік осал топтарды елдің экономикалық құрылымына біріктіру үшін қолайлы орта құру бойынша ұсыныстар әзірлеу үшін пайдаланылуы мүмкін.

Түйін сөздер: әлеуметтік кәсіпкерлік, әлеуметтік бағытталған кәсіпкерлік, институционалдық және құқықтық интеграция, әлеуметтік кәсіпкерлік экожүйесі.

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Институционально-правовая интеграция социально уязвимых лиц в экосистему социально ориентированного предпринимательства в Казахстане

В данном исследовании рассматриваются процесс и перспективы институциональной интеграции социально уязвимых слоев населения в сферу социального предпринимательства в Казахстане. Актуальность темы обусловлена необходимостью разработки эффективных механизмов для решения социальных проблем, увеличения занятости и усиления социальной интеграции этих граждан.

Цель исследования – выявить препятствия и сформулировать рекомендации по оптимизации институциональной среды для стимулирования социального предпринимательства и повышения благосостояния уязвимых групп. В статье представлен анализ правовой интеграции в экосистему социального предпринимательства в Казахстане и теоретические аспекты институционализации этого сектора. Научная значимость работы заключается в установлении причинно-следственных связей между институционализацией социального предпринимательства и его потенциалом для интеграции социально уязвимых групп.

Анализ позволил определить ключевые направления для улучшения законодательной и институциональной среды, что способствует более эффективной интеграции социального предпринимательства в экономику страны и повышению благосостояния уязвимых слоев. Оценка текущего состояния и перспектив развития социального предпринимательства была проведена на основе анализа научных публикаций, статистических данных и материалов общественных организаций. Экономико-математические модели помогли выявить наиболее значимые факторы, влияющие на развитие сектора.

Вклад работы заключается в доказательстве динамизма и вариативности институционально-правового процесса интеграции уязвимых групп населения в экосистему социального предпринимательства. Результаты исследования имеют практическую ценность и могут быть использованы для разработки рекомендаций по созданию благоприятной среды для развития социального предпринимательства и интеграции социально уязвимых групп в экономическую структуру страны.

Ключевые слова: социально ориентированное предпринимательство, социальное предпринимательство, институционально-правовая интеграция, экосистема социального предпринимательства.

Introduction

In recent years, social entrepreneurship of socially vulnerable groups of the population has aroused considerable interest around the world, attracting the attention of researchers, entrepreneurs and entire states. Kazakhstan, striving for sustainable development, also did not stand aside. The Republic has committed to the implementation of 17 Sustainable Development Goals within the framework of the International Program «The 2030 Agenda for Sustainable Development».

In particular, as part of the first goal regarding the eradication of poverty, Kazakhstan will have to reduce a number of poor people by about half by 2030. However, the dynamic of achieving this goal is not satisfactory. Currently, the poverty rate in Kazakhstan has not increased and is 5.2%, but the ab-

solute increase has reached 4%. Over the past year, the number of poor people increased by 39.7 thousand, from 992.1 thousand to 1.031 million people. Therefore, social entrepreneurship is increasingly seen as a powerful tool for solving the problem of employment, especially among vulnerable groups of the population. This sector of the economy has significant potential for creating new jobs, stimulating innovative processes and promoting social integration, which makes it relevant and important for solving pressing social problems. In Kazakhstan, like many other countries, there is a growing interest in social entrepreneurship, due to its opportunities to achieve sustainable development.

An analysis of research in the field of social entrepreneurship shows that the attention of the scientific community is gradually shifting from studying the phenomenon itself to analyzing the processes of its institutionalization. The creation of a solid institutional environment is a critical condition for the successful development of social entrepreneurship and its integration into the economic system. For socially vulnerable groups of the population, social enterprises act as an important platform for self-realization and active participation in the economy, which contributes to their social integration.

Social entrepreneurship not only solves specific social problems, but also serves as a catalyst for broader socio-economic transformations. Social enterprises play a key role in achieving the Sustainable Development Goals by contributing to poverty reduction, improving the quality of life and strengthening social ties.

Kazakhstan demonstrates positive trends in the development of social entrepreneurship. The improvement of the country's position in the international rankings of social progress indicates the efforts being made to create a supportive environment for social business. This confirms the relevance and prospects of social entrepreneurship as a tool for solving social problems and improving the quality of life of the population. Therefore, the institutional-legal integration of socially vulnerable people into the ecosystem of socially oriented entrepreneurship through laws, measures, programs and other government instruments is recognized as especially necessary to reduce unemployment among this category of the population and is a mechanism for their socialization into society.

On the current stage, the development of this process should be not only at the state level as a whole, but also locally and in the regions. Local authorities, as well as business, must facilitate this process by means available – administrative, political, legal, in-formational, financial and economic, etc. The issue of developing local institutions designed to provide practical assistance to potential and existing social entrepreneurs is the most actual and important.

Literature review

Social entrepreneurship appeared in Kazakhstan due to the world processes of globalization and today has become a fairly important trend in the country's economy. It originated in the USA and today has spread to all economies of the world. The theoretical basis for understanding such a phenomenon as social entrepreneurship was described in the works of B. Drayton, J. Mair, I. Marti (Mair, 2006; Drayton, 2002). An important addition to the understanding of its essence from the point of view of socio-economic specifics was provided by the works of G. Diz, J.-B. Sey, P. Drucker, J. Porras, J. Collins. D. Borshtein and M. Yunus, who paid considerable attention to the analysis of its practices and development prospects (Borshtein, 2012; Moskovskaja, 2011) According to E. De Leeuw (1999), changes based on entrepreneurship can be made through the gradual institutionalization of the community.

In general, the idea of the essential content of social entrepreneurship phenomena has evolved over the centuries, in parallel with the development of the field of activity itself. At the same time, discussions around its exact definition still continue. However, in the process of reviewing the scientific literature researchers dealing with this problem identified a number of main schools that consider social entrepreneurship from different point of views.

Kazakh scientist S.T. Okutaeva presented various approaches to understanding social entrepreneurship, highlighting several key schools in this area.

The School of Social Innovation, whose representatives include J. Thompson, S. Alvord, J. Mair and I. Marty, focuses on the application of innovative methods to meet social needs. These researchers consider social entrepreneurship as a means of introducing innovative solutions to solve social problems.

The European School, founded by W. Stefan, L. Ulaner, R. Speer and I. Vidal, emphasizes the key role of state support in socially oriented activities. They believe that the successful functioning of social initiatives requires strong government support, which ensures the stability and development of social programs.

The English School, represented by D. Turner, K. Leeming, S. Dixon, A. Clifford, L. Darby and

H. Jenkins, focuses on business as the main driver of solving social problems. These researchers are convinced that businesses should play a leading role in solving social issues, directing their income to support vulnerable groups and the development of social projects.

All these schools agree in recognizing the critical importance of interaction between government and business within the framework of the ecosystem of social entrepreneurship. Government agencies are obliged to create favorable conditions for the growth of social entrepreneurship through the development of appropriate regulations, providing financial support and stimulating innovative initiatives. Business, in turn, plays a significant role in solving social problems by creating social enterprises, investing in social projects and forming partnerships with government agencies and civil society.

The synergy between government and business initiatives contributes to the creation of new jobs, reducing unemployment, stimulating innovation and strengthening social ties. Such cooperation ensures the sustainability and effectiveness of the activities of social entrepreneurs working to solve the problems of socially vulnerable groups of the population.

Nevertheless, systematic and consistent institutionalization is necessary for the full realization of the potential of social entrepreneurship. The lack of clear rules and support mechanisms can lead to instability and inefficiency of social enterprises. Therefore, the creation of an effective institutional environment is a critical condition for the successful development of social entrepreneurship

Methodology

This study uses a comprehensive methodological approach combining the analysis of sociological, economic, legal and methodological sources, as well as empirical research. For a detailed analysis of the data provided by the Association of Social Innovators and the Bureau of National Statistics, systematic and process approaches were used along with analytical and statistical methods. In addition, a content analysis of the presentations of social entrepreneurs was carried out. Economic and mathematical modeling has played a key role in identifying quantitative relationships between social and demographic factors and the development of social entrepreneurship in Kazakhstan. The SWOT analysis revealed both internal and external factors influencing the dynamics of this sector.

The results obtained have significant practical value for the formation of strategies for the devel-opment of social entrepreneurship in the regions of Kazakhstan. The identified strengths and opportunities can be used to create optimal conditions for the prosperity of social enterprises, while the identified weaknesses and threats require the development of appropriate measures to eliminate them. These results can serve as a basis for the development of targeted programs aimed at supporting social entrepreneurs and integrating socially vulnerable groups into the economic structure of the country.

Results and discussion

Institutionalization is a process of formation and establishment of institutions in society, aimed at consolidating or legitimizing certain norms, rules and structures in society, by an official recognition or support of government, or any of its authoritative institutions (nauchniestati.ru, 2023).

Institutionalization ensures stability and predictability of the behavior of people and organizations, as it provides its legitimacy and functioning in society through existing and legally enshrined social norms and rules. Institutionalization can be the result of both targeted efforts of various groups and organizations, and the result of spontaneous processes. It can be associated with the activities of political and economic institutions and occur both at the state and regional levels.

We can identify the following key elements of institutionalization, which, in our opinion, are collectively included as components in the ecological model of social entrepreneurship, forming its structure. They are:

- a legal system that includes legislation that defines the status, rights and obligations and regulates the activities of social enterprises;

- infrastructure including business incubators, consulting services and other resources for social entrepreneurs;

- an educational system offering training and professional development programs for social entrepreneurs;

- a cultural system, of which an inclusive culture is a part, creating normative and ethical conditions for the perception of socially vulnerable people as full members of society and contributing to their socialization;

- an information system designed to inform about social entrepreneurship, best practices and opportunities;

- a financial system that provides access to investments, grants and loans.

Each business environment operates within a specific ecosystem. According to K.I. Kraenkova and other authors, the ecosystem is an economic community of interconnected entities and institutions that acts as a catalyst, ensuring interaction between all participants through tangible and intangible components. This interaction is aimed at creating favorable working and living conditions for socially vulnerable groups of the country's population.
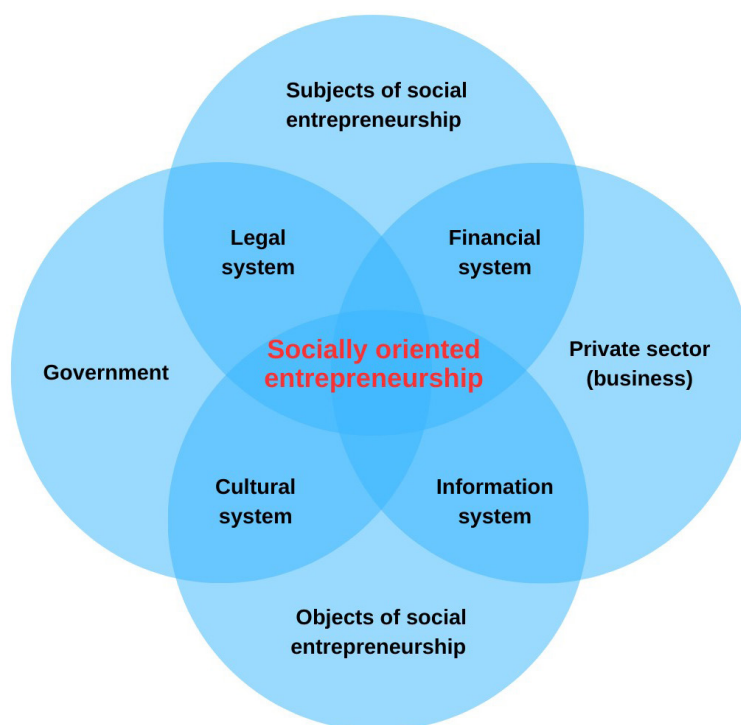

Figure 1 – Ecosystem of socially-oriented entrepreneurship of the Republic of Kazakhstan
Note – compiled by the authors

The social entrepreneurship ecosystem is a constantly evolving environment. It is institutionalization processes that help it to be in a constant progressive movement. In Kazakhstan, institutionalization is slowly but increasing; the entrepreneurship ecosystem in general is being strengthened, and therefore socially oriented entrepreneurship in particular. This improves the position of socially vulnerable people, as one of significant objects of the ecosystem. Let's consider the practical aspects of institutionalization of the socially vulnerable part of the population of Kazakhstan.

It defined that Kazakhstan is experiencing the third stage of institutionalization (Abzhekenova, 2020).

The first stage, which began in the mid-2000s, was marked by the formation of socio-entrepreneurial corporations (SEC), created to stimulate the socio-economic development of the regions. Never-theless, after the reorganization in 2011, the activities of these corporations have become more fragmented and multifaceted.

The second stage, which began in 2010, is characterized by an increasing interest in social entrepreneurship on the part of large businesses, foundations and government agencies. This period was marked by a significant increase in government support and the active development of the legislative framework, which contributed to a more structured and systematic approach to supporting social entrepreneurship.

The third stage, which began with the adoption of the Law «On Social Entrepreneurship» in 2022, consolidated the concept of social entrepreneurship at the legislative level. This law has created a solid legal basis for the further development of social entrepreneurship, establishing clear norms and conditions conducive to its sustainable growth and integration into the economic system.

According to the Order of the Ministry of National Economy of the Republic of Kazakhstan dated July 17, 2023 No. 140, the rules for maintaining the Register of social entrepreneurship entities were approved. At this time, 291 enterprises are listed in the register. The potential for registration remains quite large – about two thousand enterprises. However, potential aspirants lack necessary confidence and determination to take part in the process. In this connection, there is a need to generate ideas to popularize this institution and strengthen the desires of social entrepreneurs to officially enter the Register and fully take advantage of all the opportunities provided by the state.

An analysis of the current state of social entrepreneurship in Kazakhstan has revealed a number of significant limitations related to the lack of systematic data and the variety of forms of manifestation of this phenomenon. Despite the existing difficulties, the conducted research made it possible to identify the key factors influencing the development of specialized social services within a socially oriented business.

Using data from the Taldau information and analytical system, an in-depth analysis was carried out, which revealed a number of characteristics that serve as indicators for assessing the impact of various factors on the development of social entrepreneurship. The results of this analysis are systematized in table 1.

Table 1 shows the following data: (Y) – attribute-result or number of socially oriented business organizations providing specialized social services; X1 – GDP per capita in US dollars; X2 – consumer price index; X3 – unemployment rate; X4 – poverty level; X5 – number of recipients of social benefits provided members of socially vulnerable groups of the population.

Table 1 – Data of analysis for the Republic of Kazakhstan

Year	Y	X_1	X_2	X_3	X_4	X_5
	Number of organizations providing social services to entrepre-neurship	Gross domestic product per capita, USD	Consumer price index, %	Unemployment rate, %	Poverty rate, %	Number of recipients of state social benefits, people
2017	256	9 247,58	102,2	4,9	4,8	688 030
2018	249	9 812,5	101,5	4,9	5,9	685 334
2019	263	9 812,5	101,6	4,8	5,7	787 092
2020	256	9 121,7	101,8	4,9	5,3	790 385
2021	272	10 370,8	101,8	4,9	5,2	804 167
2022	281	11 476,6	104,7	4,9	5	844 314
2023	291	13 300	102,2	4,7	5,1	818 350
Note – compiled by the authors based on sources 3						

The factors are divided into three categories: economic (X1, X2), social (X3, X4) and demographic (X5). Social and demographic factors take into account the relationship between the elements of the social sphere and state policy in the field of social protection, while economic factors reflect the economic situation in society. This separation of factors makes it possible to assess the impact of various aspects on the development of specialized social services offered by socially oriented enterprises and identify their key determinants.

To identify the dependencies between the factors and create a model reflecting these dependencies in the form of the equation y = f(x), we will use methods of economic and mathematical analysis. This model will show correlation and regression relationships between the specified variables. The results of the correlation analysis are presented in Table 2.

The results of the correlation analysis allow us to identify the relationships between the variables and identify the key factors that have the greatest impact on the field of study. This provides the opportunity to make more informed decisions and develop strategies based on real data.

To further understanding of these relationships and possible practical implications, we conducted additional multiple regression analyses, Table 3.

Table 2 – Correlation analysis

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Column 1	1					
Column 2	0,920693188	1				
Column 3	0,519413213	0,400537362	1			
Column 4	-0,620819084	-0,72335722	0,147172295	1		
Column 5	-0,556894668	-0,434935136	-0,533269549	0,114894657	1	
Column 6	0,791823312	0,584993544	0,50687746	-0,344919517	-0,148598055	1
Note – compiled by the authors						

Table 3 – Multiple regression analysis

	Odds	Standard error	t-statistic	P-Value	Bottom 95%	Top 95%
Y-intersection	322,9616598	0,730593526	442,0538209	0,001440138	313,6785889	332,2447308
Variable X_1	0,005396541	8,25456E-06	653,7650758	0,000973774	0,005291657	0,005501425
Variable X_2	-1,204470029	0,008860041	-135,9440662	0,004682869	-1,317047527	-1,091892532
Variable X_3	-5,401700544	0,140983746	-38,3143496	0,01661193	-7,193068888	-3,610332199
Variable X_4	-9615043416	0,015249395	-630,519653	0,001009674	-9,808805354	-9,421281477
Variable X_5	0,000114599	1,25832E-07	910,7285128	0,000699022	0,000113	0,000116198
Note – compiled by the authors						

The analysis shows that all variables are statistically significant (P-value < 0.05), each of which makes a significant contribution to explaining the variability of the dependent variable. Therefore, the regression model adequately reflects the situation and can be applied in practice.

Based on the data obtained, we can construct a multiple linear regression equation that includes all the variables, since they are all significant. Thus, all predictors will be involved in the multiple regression equation:

$$Y = 322{,}9616598 + 0{,}005396541X_1 - \\ - 1{,}204470029X_2 - 5{,}401700544X_3 - \\ - 9{,}615043416X_4 + 0{,}000114599X_5. \qquad (1)$$

Equation (1) can be used to predict the values of the dependent variable (Y) based on the values of the independent variables (X1, X2, X3, X4 and X5), which makes it applicable to solving practical problems in the field of our research.

The analysis revealed a statistically significant relationship between economic and social factors and the number of organizations providing specialized social services.

Economic indicators such as gross domestic product per capita and consumer price index have a noticeable impact on the dynamics of the social services sector. High levels of economic growth and stable consumer prices are usually associated with an increase in the number of organizations capable of offering specialized social services.

Social factors such as the unemployment rate and the poverty rate also show a statistically significant correlation with the volume of social services provided. A decrease in unemployment and poverty usually leads to an increase in the need for social support, which, in turn, contributes to an increase in the number of organizations providing relevant services.

Demographic factor (X5): Variable X5, representing the number of recipients of state social benefits, is also significant. Demographic characteristics of the population also influence the need for social support and services.

Data analysis has shown that each of the variables under consideration significantly affects variations in the number of organizations providing social services. In particular, the increase in gross domestic product per capita and the number of recipients of state social benefits is positively associated with an increase in the number of such organizations. At the same time, an increase in unemployment and poverty is usually associated with a decrease in demand for social services.

The results of multiple regression analysis confirmed that the model, which takes into account gross domestic product, consumer price index, unemployment rate, poverty level and the number of recipients of social benefits, is an effective tool for predicting trends in the development of the social services sector. The growing number of socially vulnerable groups, manifested in an increase in the number of recipients of state benefits, stimulates the growth of social entrepreneurship and increases the demand for social services.

The expansion of the social services sector has a positive impact on socio-economic development, contributing to a reduction in unemployment, improving the housing conditions of vulnerable groups and increasing tax revenues to the budget. These factors, in turn, contribute to an increase in the general level of well-being of society. Consequently, the state has good reasons to support the development of social entrepreneurship as an effective tool for solving social problems and stimulating economic growth.

And we are not alone in this statement; some researchers also believe that social entrepreneurship can solve the problems of poverty and improve living standards of socially disadvantaged segments of the population (Kalinichenko D.V., 2019:26).

To determine future prospects of the institution of socially oriented entrepreneurship in Kazakhstan, we have created a SWOT analysis matrix for this activity (Table 4).

Table 4 – SWOT analysis of the prospects for the development of the institute of socially oriented entrepreneurship in Kazakhstan

S – strengths:	W – weaknesses:
− recognition of the importance of the institution of socially oriented entrepreneurship in the country; − emotional and practical involvement, increasing the social significance of socially vulnerable individuals; − the existence of a legitimate legal framework, including the Law "On Social Entrepreneurship" adopted by the State; − creation of a Register of social entrepreneurs; − personal brand or existence of a social network to popularize the business; − approval of the rules for maintaining the Register of Social Entrepreneurship entities; − launch of the Subcommittee on the development of social entrepreneurship at NCE «Atameken»; − meeting social needs, solving social problems and participating in the formation of social benefits. − satisfying demand for socially significant goods.	− weak development of civic consciousness in society; − lack of by-laws; − the presence of a psychological barrier among social entrepreneurs, indecisiveness to enter the Register; − at the regional level, "Business Road Maps" have not been created to help social entrepreneurs who have decided to join the Register; − significant level of corruption; − problems with accessibility and duration of education for people with disabilities; − lack of specialists in the field of social entrepreneurship; − subcommittees of the Atameken NCE have not been created at the regional level to provide support and assistance; − economic and political instability, as well as a low degree of social responsibility of business.
− **O – possibilities:**	**T – threats:**
− participation in the international market; − development of new national brands; − volunteering; − improving competitiveness; − expanding online trading opportunities; − developing innovative solutions to social problems.	− deterioration of the environmental situation in the regions; − degradation of the economic and social situation in the regions; − bureaucratic obstacles that create pressure on social entrepreneurship; − changes in legislation related to social entrepreneurship.
Note – compiled by the authors	

SWOT analysis shows that the existence of a Law on Social Entrepreneurship, the creation of a Register of social Entrepreneurship entities, the launch of a subcommittee at the National Chamber of Entrepreneurs "Atameken" and recognition of the importance of the institute of socially oriented entrepreneurship are key strengths in the process of institutionalization and development of its ecosystem.

Weaknesses include the lack of by-laws, insufficient development of civic consciousness in society, presence of a psychological barrier among social entrepreneurs, and indecisiveness to enter the Register. The law on social entrepreneurship was adopted, entrepreneurs received good preferences. But these preferences still do not work, since the Ministry of Economy has not prescribed the relevant by-laws

for their implementation. Currently, among 10 prescribed preferences only 30% of them work.

The process of strengthening regional ecosystems is weakened by the absence of subcommittees of Atameken and "Business Road Maps" in the regions, to help social entrepreneurs who have decided to join the Register. There is still a high level of corruption in the localities and a low level of social responsibility of business. On February 10, 2023, a subcommittee on the development of social entrepreneurship began its work under the NCE Atameken. It consists of 17 participants, representatives of various cities and regions of Kazakhstan, who are already compiling a list of problems based on letters and appeals from citizens, which are transferred to the responsible authorities for resolution. The subcommittee hopes to establish communication between government structures and social entrepreneurs and ensure that all preferences work. Many social entrepreneurs are from the SVPP category, who are an example for many as despite difficulties create and lead projects. Their activities should not only be supported, but also widely publicized. These problems would be solved more quickly if there were such local subcommittees in the regions, with the participation and assistance of which each entrepreneur could solve problems on the spot.

Meanwhile, potential opportunities for developing socially-oriented business for all socially vulnerable groups of the population, including those with disabilities, and online trade of goods created by social entrepreneurs are expanding. Improving the tools of volunteering and charity in the social sphere will provide an invaluable contribution to support of entrepreneurs at the initial stages of developing their business. Creation conditions for organizing product certification and registering new national brands of socially oriented business is very promising too. All these issues are called upon to be solved in the regions by local authorities together with the Entrepreneurship and Investment Departments authorized for this purpose.

The Kazakhstan Association of Social Innovators, created in 2022, headed by Emin Askerov, provides enormous assistance to social entrepreneurs. All members of the association have training two times a week; experienced team members provide patronage over newcomers. Branches of the Association were created and operate in the regions. The leadership of the Association conducts Kurultais, and plans to create a networking platform. The task of the Association is to unite all social entrepre-

neurs, cultivate regional leaders who will become a significant social force and support in promoting the institution of social entrepreneurship, a bridge between new entrepreneurs and akimats in the regions. Today the Association has more than 600 social entrepreneurs as its members.

Threats are associated primarily with the presence of bureaucratic barriers that create pressure on socially oriented entrepreneurship. In this connection, it is necessary to actively use non-financial instruments of state support for business and entrepreneurship, and reduce administrative pressure on socially oriented businesses.

Conclusion

In the current socio-economic context, it is advisable to strengthen the focus of public policy at the regional level, where social entrepreneurship initiatives are directly implemented. The key aspect is to assess the degree of institutional maturity of regional ecosystems supporting the development of social business, as well as the effectiveness of government support provided.

To achieve these goals, it is recommended to decentralize the process of coordinating and supporting social entrepreneurs by transferring these functions to local structures and business service centers. Local departments of entrepreneurship and investment, acting on behalf of the executive authority at the regional level, should develop and implement detailed roadmaps. These cards should be aimed at simplifying the registration procedure for social enterprises and providing comprehensive support necessary for their effective functioning and development.

It is extremely important that institutionalization continues on the ground, the necessary conditions are created and support is provided to both active social entrepreneurs and those who want to start their own business and put it on the Register. It is also necessary to develop and strengthen the relevant infrastructure, as well as take measures to facilitate the registration of enterprises, obtaining financial assistance, renting premises, etc. Unfortunately, the process of implementing these measures is progressing extremely slowly.

In the segment of our research – socially-oriented entrepreneurship, there is no need to limit with solving only social problems; here the unification of such areas as, for example, production and trade, healthcare and ecology, and others should be welcomed. This expansion of social entrepreneurship will help solve a range of problems in society. In

this connection, it makes sense to consider the issue of providing tax benefits to such entrepreneurs.

The proposed measures, in our opinion, will contribute to the effective integration of socially vulnerable segments of the population into the field of social entrepreneurship in Kazakhstan. This approach not only addresses key social problems, but also has a significant impact on strengthening the national economy. Increasing the involvement of vulnerable groups in economic activity helps to reduce social tension, increase employment and, as a result, increase the general level of well-being of the population.

Systematic support and development of social entrepreneurship has the potential to create new jobs, stimulate innovation and increase the competitiveness of the domestic economy. In addition, social enterprises, as a rule, are focused on solving specific local problems, which contributes to a more balanced development of regions and the strengthening of social capital.

Acknowledgement

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THE ROLE OF DIGITAL CROWDFUNDING PLATFORMS IN DEMOCRATIZING GLOBAL ENTREPRENEURSHIP

Digital platforms for crowdfunding have emerged as a breakthrough in the field of entrepreneurial finance, offering a digital channel for democratizing capital access on a worldwide level. This study demonstrates how crowdfunding platforms assist impending firms in managing worldwide finances' intricacies while surpassing institutional and cultural obstacles through practical occurrences. This paper closely examines the social impact of these platforms as well as legislative frameworks, cultural norms, key performance indicators, and platform features. An important factor determining whether or not a crowdfunding site succeeds is its design and characteristics. The study points out that some platform features like reward tiers, equity options, and community-building tools can have an impact on investor involvement and the outcome of campaigns. Furthermore, the research showcases that crowdfunding is increasingly being used as a technique to enhance diversity and inclusion, especially among unrepresented business owners including females and ethnic minorities. The study finds optimal practices and typical problems in obtaining foreign finance by examining the success rates of businesses and how these platforms assist disadvantaged entrepreneurs. The results are intended to contribute to a more inclusive entrepreneurial environment by exposing tactics that business owners can use to optimize the potential of crowdfunding in various geographic areas. In essence, this paper intends to give practical information that can be used by politicians, private-public partners, and other stakeholders in business to promote an entrepreneurship environment that is fairer and more sustainable.

Key words: digital crowdfunding, global entrepreneurship, access to capital, inclusive finance.

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Жаһандық кәсіпкерлікті демократияландырудағы цифрлы краудфандинг платформаларының рөлі

Краудфандингке арналған цифрлық платформалар кәсіпкерлік қаржы саласында серпіліс жасап, капиталға қол жеткізуді ғаламдық деңгейде демократияландыруға мүмкіндік беретін цифрлық арна ұсынды. Бұл зерттеуде краудфандинг платформаларының жаңа компанияларға жаһандық қаржының күрделілігін басқаруға қалай көмектесетіні және институционалдық, мәдени кедергілерді нақты мысалдар арқылы қалай еңсеретіні көрсетіледі. Мақалада осы платформалардың әлеуметтік әсері, заңнамалық негіздер, мәдени нормалар, негізгі көрсеткіштер мен платформаның сипаттамалары жан-жақты талқыланады. Краудфандинг платформасының сәтті немесе сәтсіз болуын анықтайтын маңызды фактор – оның дизайны мен ерекшеліктері. Зерттеу платформаның марапат деңгейлері, акция опциондары мен қауымдастық құру құралдары сияқты мүмкіндіктерінің инвесторлардың қатысуына және науқан нәтижелеріне қалай әсер ететінін көрсетеді. Сонымен қатар, зерттеуде краудфандингтің инклюзивтілікті арттыру әдісі ретінде, әсіресе әйелдер мен этникалық азшылықты қамтитын аз өкілдік етілген кәсіпкерлер арасында жиі қолданылып жатқаны айтылады. Зерттеу шетелдік қаржыландыруды тартудағы тиімді тәжірибелер мен жалпы проблемаларды анықтай отырып, бұл платформалардың осал кәсіпкерлерге қалай көмектесетінін талдайды. Нәтижелер кәсіпкерлерге әртүрлі аймақтарда краудфандингтің әлеуетін барынша тиімді пайдалану үшін қолдануға болатын тактикаларды ашу арқылы неғұрлым инклюзивті кәсіпкерлік ортаны дамытуға бағытталған. Жалпы алғанда, мақала саясаткерлер, жеке-жариялық серіктестер және бизнестегі басқа мүдделі тараптар қолдана алатын әділ және тұрақты кәсіпкерлік ортаны дамытуға бағытталған практикалық ақпарат беруді көздейді.

Түйін сөздер: цифрлық краудфандинг, ғаламдық кәсіпкерлік, капиталға қол жеткізу, инклюзивті қаржы.

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Роль цифровых краудфандинговых платформ в демократизации глобального предпринимательства

Цифровые платформы для краудфандинга стали прорывом в области предпринимательских финансов, предлагая цифровой канал для демократизации доступа к капиталу на глобальном уровне. В данном исследовании показано, как платформы краудфандинга помогают начинающим компаниям справляться со сложностями международных финансов и преодолевать институциональные и культурные барьеры через практические примеры. Статья подробно рассматривает социальное воздействие этих платформ, а также законодательные рамки, культурные нормы, ключевые показатели эффективности и характеристики платформ. Важным фактором, определяющим успех краудфандинговой платформы, является её дизайн и особенности. Исследование отмечает, что такие характеристики платформ, как уровни вознаграждений, опционы на акции и инструменты создания сообщества, могут влиять на вовлеченность инвесторов и исход кампаний. Более того, в работе показано, что краудфандинг всё чаще используется как способ повышения разнообразия и инклюзивности, особенно среди недопредставленных предпринимателей, включая женщин и этнические меньшинства. Исследование выявляет оптимальные практики и типичные проблемы в привлечении иностранного капитала, анализируя показатели успешности предприятий и то, как эти платформы помогают предпринимателям из уязвимых групп. Результаты направлены на содействие более инклюзивной предпринимательской среде, выявляя стратегии, которые бизнесмены могут использовать для оптимизации возможностей краудфандинга в различных регионах. В целом, эта статья стремится предоставить практическую информацию, которая может быть полезна политикам, частно-государственным партнёрам и другим заинтересованным сторонам для продвижения более справедливой и устойчивой предпринимательской среды.

Ключевые слова: цифровой краудфандинг, глобальное предпринимательство, доступ к капиталу, инклюзивные финансы.

Introduction

Digital crowdfunding portals such as Kickstarter, Indiegogo, and GoFundMe have signaled a watershed moment in the fast-changing face of entrepreneurial finance. These platforms have transformed how start-ups and small enterprises acquire financing, democratizing the process by utilizing the crowd's aggregate financial power (Mollick, 2014). This paradigm shift allows for a more egalitarian allocation of capital, giving entrepreneurs worldwide hope, particularly those from poor origins or working in emerging markets (Agrawal, Catalini, & Goldfarb, 2015). Crowdfunding platforms level the playing field for access to capital by avoiding traditional financial intermediaries (Belleflamme, Lambert, & Schwienbacher, 2014; Balsalobre,et al., 2024), providing a mix of finance and community support that fosters the realization of innovative ideas and projects that would otherwise fail due to traditional funding barriers.

Entrepreneurship, widely recognized as a critical driver of economic growth, innovation, and job creation, frequently faces severe impediments to traditional finance, particularly in developing nations or among marginalized populations (Audretsch, Keilbach, & Lehmann, 2006; Rena,2009). The digital era, marked by innovative mechanisms for funding new ventures, has significantly altered the traditional pathways by which start-ups and innovative projects secure funding, catalyzing global entrepreneurship (Bruton, Khavul, Siegel, & Wright, 2015). Equity crowdfunding (ECF), a developing phenomenon in the fintech space, is a new startup financing technique that allows entrepreneurs to acquire funds from a large investor base through web-based campaigns (Cumming et al., 2019; Kirby & Worner, 2014). This study examines the influence of digital crowdfunding platforms in democratizing global entrepreneurship, with a focus on capital availability, regional comparative analysis, and the impact of inclusive finance.

The digitalization of funding mechanisms, particularly ECF, represents a critical evolution in entrepreneurial finance, addressing venture capital supply constraints and leveraging the potential of social networks to engage new, often small-scale, private investors ("the crowd") (Mollick, 2014; Belleflamme et al., 2014). This virtual capital market's digital mediation lowers transaction costs, potentially increasing the volume and efficiency of entrepreneurial financial markets (Agrawal et al.,

Agrawal, Catalini & Goldfarb (2015). As a result, ECF emerges as a possible channel for increasing access to external financing for innovators and entrepreneurs who have previously relied on private angel networks, friends, and family, or banks and venture capitalists in later phases (Cumming, Fleming & Schwienbacher (2019).

Historically, many entrepreneurs have struggled to secure the necessary cash to start or expand their businesses. Individuals have traditionally gone to banks, which can require extensive collateral and a strong credit history, or venture capitalists and angel investors, who prefer businesses with great profitability and the potential for large returns (Belleflamme et al., 2014; Mollick, 2014). Such constraints constitute severe challenges, especially for people from marginalized communities or working in underdeveloped economies with little access to such resources or networks. Crowdfunding develops as a technique of generating funds that depart dramatically from these traditional paths, harnessing individuals' collective efforts via digital platforms to pool resources in support of a commercial initiative or project.

Crowdfunding originated in the early 2000s when platforms like Kickstarter, Indiegogo, and Go-FundMe emerged. These platforms signified a shift toward a more inclusive financial model, allowing entrepreneurs to propose their ideas to a worldwide audience rather than a small group of wealthy individuals (Lambert & Schweenbacher, 2010; Agrawal et al., 2015; Hoque, 2024). This growth exemplifies a broader trend of democratizing finance access, disrupting traditional financial intermediaries' monopolies, and creating new opportunities for businesses that might otherwise go unfunded.

Crowdfunding's democratizing effects have far-reaching ramifications for global enterprises. By eliminating financial entrance hurdles, it provides a broader spectrum of entrepreneurs with access to capital, particularly those in underserved communities and emerging markets (Bruton et al., 2015). This transition not only allows for a broader range of initiatives, but it also increases the possibility for economic and social innovation on a global scale. Crowdfunding platforms have proven critical in financing projects that align with the crowd's collective interests and beliefs, thereby improving the global entrepreneurial ecosystem.

Despite the rising corpus of literature, detailed studies are scarce comparing the efficiency of crowdfunding platforms across worldwide areas. The role of cultural norms, regulatory frameworks, and platform characteristics in impacting crowdfunding success is understudied. Furthermore, there are no studies that researched on how these platforms directly benefit disadvantaged entrepreneurs, who may face additional challenges in accessing funding.

Keeping the backdrop in mind, this study intends to overcome these gaps by conducting a thorough examination of the impact of digital crowdfunding platforms in democratizing global entrepreneurship. This study examines the social impact, regulatory contexts, cultural influences, and platform-specific aspects that contribute to the success or failure of crowdfunding campaigns in various locations using a combination of literature review and comparative case study analysis. The fundamental objective of this study is to provide a thorough knowledge of how digital crowdfunding platforms might boost global entrepreneurship by democratizing access to financing. This study identifies techniques to maximize the potential of crowdfunding by studying the success rates of firms on various platforms as well as their support for disadvantaged entrepreneurs. Furthermore, it emphasizes the importance of legal and cultural circumstances in shaping the effectiveness of these platforms, providing actionable lessons for entrepreneurs and politicians.

This study is organized as follows: the introduction discusses the significance, literature overview, research gap, purpose, and contributions. The literature review delves deeply into current studies on crowdfunding and global entrepreneurship. The methodology outlines the comparative case study approach and data collection techniques. The analysis and conclusions section gives the comparative analysis results, with a focus on key performance metrics, social impact, and platform characteristics. The discussion places the findings in the context of previous research and analyzes their implications for policy and practice. The conclusion highlights the research's findings, limitations, and recommendations for further research.

Literature review

It must be noted that the environment in which entrepreneurship happens globally is transitioning. Entrepreneurs, who were previously relying on venture capitalists, angel investors, and bank loans, now have a new funding option: electronic based crowdfunding platforms. Such CPs bring together the business founders with a vast pool of the target audience, thus offering a relatively low-barrier funding model compared to the conventional VCs (Mollick, 2014). They have the capability to make cash accessible to extra people, especially these in

the untimely improvement nations or with the innovative mind, which does not impress usual financial backers (Uzzi & Dimitrov, 2005).

According to Acs et al. (2018), global entrepreneurship is beneficial for the economy and the introduction of innovations. Nonetheless, raising capital remains as a major problem among growing entrepreneurs particularly those from the minority group or from developing countries (Uzzi & Dimitrov, 2005). Traditional finance sources often choose previous experience, and often collateral and those projects that satisfy specific criteria (measures) of investment (Bruton et al. 2014). While this selection type is helpful, it may prove to be rigid and narrow in scope and thus can easily omit many valuable and distinct concepts.

To these problems, there are new technologies, particularly digital crowdfunding platforms, which can rise as game- changers for cash raising at a higher degree of democratization (Mollick, 2014). Such structures remove the ordinary filter to present self-employed people to any potential financier (Schwienbacher & Laurison, 2017). Crowdfunding can be particularly beneficial when it is applied by social impact company's or company's with a strong connection to the community, people become willing to invest based on similar values or what is best for the community (Martin & Osberg, 2007).

This literature review aims at exploring the definitions and the core concepts regarding crowdfunding and its implications for international venture. It examines the democratisation of the capital access, social and economic effects, role of legislation and regulation, culture and the roles of functional aspects of the platforms. They also discuss the problems presented in the literature and potential topics for more comprehensive research. It is aimed to contribute to the existing literature through this valuable and extensive study, which intends to identify how digital crowdfunding platforms might enhance the global entrepreneurship by opening up the entrepreneurial landscape.

Definition of Concepts

Digital crowdfunding platforms have thus shifted the nature of sources of entrepreneurial finance making it easier to access funds. According to Mollick (2014) crowdfunding is the act of raising small amounts of money from the public most often through the inter- net to finance a project or business. The main types of crowdfunding include; reward based funding, equity funding, donation funding, and debt funding (Belleflamme, Lambert, and Schwienbacher, 2014). In reward-based crowdfunding, backers receive something in exchange for

their contributions, not in form of cash some other form of value. Those equity backers who take part in the equity crowdfunding receive equity stake in the company. While in donation-based crowdfunding, funding relies mainly on charitable contributions in which the contributors do not hope to be paid back while in debt-based crowdfunding, the backers invest in the enterprise expecting to be paid back (Cumming et al., 2019). International venture means the search for new ideas for carrying out enterprises in more than one country. Value creation is realised out of the exploitation of worldwide networks and markets. This notion is especially getting prominent in today's world where the geographical distance is not a big hurdle (Acs et al., 2014).

Equality of Opportunity in Fund Raising

The literature on crowdfunding has a central theme of encouraging funding for people through the democratisation of capital. Big firm funding models including bank loans and venture capital could have steep entry rates and strict measures that guide out many a resultant genius, especially from vulnerable groups (Bruton et al., 2015). These difficulties are eased by crowdfunding platforms as a better financing model. They allow businesses to tap into a global population of potential investors, thereby not being dependent on the existing financial structures of a country (Agrawal, Catalini, & Goldfarb, 2015).

Mollick (2014) concluded that entry barriers to finance have been reduced by crowdfunding, meaning more people with ideas for a business can find finance. This inclusion is very useful to the entrepreneurs in the emerging nations or those operating in the regions not covered by the conventional venture capital markets. According to Belleflamme, Lambert, and Schwienbacher (2014), crowdfunding systems feature relatively low payments from a large number of backers and, therefore, the distribution of risk and funding of projects that would otherwise be difficult to attract classical investors.

Effects of Crowdfunding on Social and Economic Rearrangements

Crowdfunding platforms not only collect money but also a large social and economic effect. In this way, they gain the audience's support – the trust of clients and recognition from the general public. Such community support can be useful for the creation of new firms because it provides the information and market end users to new business owners and entrepreneurs (Mollick, 2014).

From literature, it was found out that the campaigns with a social cause message are likely to attract a lot of attention since backers are often motivated by projects that are in line with their beliefs

(Agrawal et al., 2015). It is especially evident in donation-based crowdfunding and reward-based crowdfunding campaigns where the campaign's social and emotional appeal carries a significant influence (Belleflamme et al., 2014). Further, crowdfunding assists the economy in providing for innovation and the formation of more enterprises. It increases the financing of projects that otherwise would not get financing thereby being pro employment development and economic growth (Rena,2009). Bruton et al (2015) refer to crowdfunding as a tool of filling finance gaps for SME and start-ups more especially in regions where banking systems are not well developed.

The inception of Legal Structures Governing Legislation

The legal framework in this industry plays a significant role with regards to the efficiency of the crowdfunding platforms. The legal framework for crowdfunding is varied across different countries which affects the ability of the platform to function and the levels of investor protection.

Equity-based crowdfunding as a specific example is subjected to strict regulation in some countries for the protection against fraud and loss of investments by the investors (Cumming et al., 2019).

Kirby and Worner (2014) conclude that the proposal of a favourable legal framework remains the most important factor in the ability of crowdfunding to take hold. They emphasize that the development of legislative regulation in the field of crowdfunding contributes to the growth of the latter's activity in countries with such legislation. On the other hand, stringent rules may slow down the advancement of crowdfunding since it increases the required compliance expenses and also narrows down the type of activities performed by crowdfunding.

Cultural Influences on Crowdfunding

Thus, cultural perceptions and social relations also dictate the results of crowdfunding campaigns. Thus, people's readiness to engage in crowdfunding can depend on their region's values related to entrepreneurship, risk, and collective funding. For instance, some cultures invariably have it that certain traditional finance methods are best used, unlike other cultures that are more relaxed and are willing to consider out-of-the-box solutions such as crowdsourcing.

The studies have found out that those advertising campaigns that reflect the culture of the local people are effective. From Belleflamme et al. (2014) the authors' opinion can be derived that the identification and application of cultural characteristics could be another success factor for crowdfunding campaigns.

Such a cultural correlation can help turn a campaign a lot more attractive to prospective funders thereby making the chances of the campaign's success much higher.

The Features of the Platform and Layout

The design of the crowdfunding platforms and how they are structured has a great influence on how they work. In the context of the analysed literature, inherent characteristics of the crowdfunding proposition include usability, clarity, and ability to engage the audience (Cumming et al., 2019). Those that provide campaign management, communication and monitoring functions can help efficient campaigns.

Mollick also concluded in his Mollick (2014) research that social integration tools including forums and social networks integration helps increase the frequency of interactions between entrepreneurs and their backers. This is essential in the provision of credibility and nurturing of the community for a given campaign. Moreover, detailed support service, which involves consulting and promotional services, can significantly increase the likelihood of a particular campaign's success.

Critical analysis

Thus, crowdfunding's ability to support GE could have significant implications; however, the current research focuses on issues that should not go unnoticed and potential limitations that should be further discussed.

Success Factors

Therefore, one cannot conclude that crowdfunding is successfully implemented across the board, because its success depends on a number of factors. Apart from the quality of the campaign presentation and the proper choice of the marketing techniques (Brindley et al., 2019), Uzzi et al. (2020) stressed that social networks and increasing the effectiveness of communicating with potential backers are significant factors. It is necessary for the Social Media Managers to frame a story that concerns the global audience and at the same time, the cultural nuances have to be understood (Li et al., 2021) and the influence of entrepreneurs has to be enlarged through the help of the peculiarities of the platforms' functioning (Belleflamme et al., 2014). Marketing managers, for instance, who wish to target the global market may be forced to change the copy used in the advertisements or use politically correct language when communicating their products' messages.

Regulatory Landscape

Crowdfunding is still more or less unregulated and its legal environment is dispersed and in a state of flux (Cumming et al. 2019). Some countries have already established rather distinct legal rules, which

may enclose potential losses for the investors, while others have relatively less refined legal requirements which can be rather confusing for the initiators of the venture as well as the supporters (Bruton et al., 2014). Lerner et al., (2020) sought to understand how change of regulation can impact the platform design and, in that way, the campaign. In order to better address this issue, the legislation of the chosen markets and the platform that the business is going to function in must be taken into consideration. Legal risks are some of the biggest inhibitors that an entrepreneur can face when trying to market their products for funding across the globe.

Cultural and Social Factors

To sum up cultural and societal factors play a significant role in the efficiency of crowdfunding campaigns. The major aspects of culture and social norms that appear to influence the target audience's response to campaigns are perceived as positive attributes that can be utilised to attract potential backers to such a campaign. Agrawal et al. (2015) and Belleflamme et al. (2014) identified that cultural consciousness is of significant importance when constructing campaign stories and interacting with the backers. Businesspeople have to tailor their advertising strategies taking into account the cultural parameters of the target marketing to be effective.

Platform Features and Design

The structural setup and the operativity of the crowdfunding platforms are influencing the campaigns that are being run quite a lot. The availability of accurate interfaces, open procedures, and sound services guarantees that such structures will support adequate campaigns (Cumming et al., 2019). Mollick's (2014) study also emphasizes the importance of community elements such as forum and social sharing to improve interaction between an entrepreneur and investors. Campaign support services that include coaching for a campaign, marketing help, large can enhance the success rates of a campaign by helping firms overcome the challenges of crowdfunding and achieve the best possible results.

Finally, the study on digital crowdfunding platforms and global entrepreneurship enlightens the world on how crowdfunding has the capability of changing the face of capital access. Due to the absence of entrance barriers and the utilization of a crowd power, these platforms present a more inclusive type of finance that can create novel products and solutions for the economy. Although, crowdfunding is acknowledged to depend on various factors such as the legal environment, culture and the type of the platform. The research that needs to be conducted in the future should be focused on how

crowdsourcing affects the industry in the long term, how different models of crowdfunding influence one another, and whether crowdfunding in the given industry is effective in diverse regions with regard to their cultural characteristics. Such research would raise awareness on how to leverage crowdfunding for global entrepreneurship to enhance dynamism and inclusiveness among the entrepreneurial population.

Theoretical framework

Digital Crowdfunding: A Perspective to Financial Inclusion Theory

In developed countries, such as the USA, the UK, and Germany, substantial research has been conducted to explore different aspects of crowdfunding. In the USA, studies by Mollick (2014), Pope and Sydnor (2011), and Greenberg and Mollick (2017) investigated on the determinants of crowdfunding success, the presence of discrimination in crowdfunding, and gender dynamics. These studies have recognised key factors influencing the success of crowdfunding campaigns, found evidence of racial discrimination, and emphasized on the issues related to gender disparities in crowdfunding process and outcomes.

In the UK, the study by Cumming, Leboeuf, and Schwienbacher (2019) offers a comparative analysis of different crowdfunding models, and their findings specify that models attract more campaigns, models tend to have higher success rates. This insight into the effectiveness of various crowdfunding models is particularly relevant for understanding how campaign structure influences outcomes in a mature market.

Recent studies, such as those by Bargoni et al. (2024) and Camilleri and Bresciani (2022), provide comprehensive reviews that underscore these distinctions and highlight the diverse applications and implications of crowdfunding across different economic contexts.

Before venturing into the ever-evolving phenomenon of digital crowdfunding platforms, it is necessary to ground the discussion in the theoretical framework. The Financial Inclusion Theory rises to the foreground as a foundation to highlight the significance of such platforms in increasing entrepreneurs' access to capital on a global scale. This study seeks to identify the nature and relevance of the Financial Inclusion Theory to shed light on how it informs the functioning and the social roles of the digital crowdfunding system. Hoping that the three themes all help convey the growers of financial services, the purpose of technology for inclusion, and the empowered part of marginalised groups, this

section aims at showing that crowdfunding platforms are not only the alternative sources and tools to the conventional ways of financing, but they are also the essential keys for the integrated economy.

In light of this, we interact with the roles that said platforms provide to supplement the void created by conventional economical systems by admitting unrated clients into bringing their innovative ideas into fruition. This leads to a discussion on the complementary relationship between digital crowdfunding platforms and financial inclusion that is further emphasized on how such intertwine encourage the economic engagement, supports the sustainable development, and sows the seeds for entrepreneurship across the world. Meanwhile, with the light on the Financial Inclusion Theory, we navigate towards the essence of how exactly digital crowdfunding platforms are used to create a more inclusive financial environment.

Key Aspects of the Financial Inclusion Theory as Applied to Crowdfunding:Key Aspects of the Financial Inclusion Theory as Applied to Crowdfunding:

Broadening Access to Financial Services: Online crowdfunding has been central to opening up capital for people and businesses, especially those who have been locked out by the conventional lending institutions. This expansion is in line with the Financial Inclusion Theory, the establishment of which is based on the financial services for the populace, including the undesirable group (Demirgüç-Kunt et al., 2015). Leveraging Technology for Inclusion: Similarly, advancing the theory and using technology to increase the access and quality of financial services, the digital crowdfunding portray this principle. They use Internet technologies to link local entrepreneurs to a global pool of investors thus promoting financial democracy (Lehner, 2013).

In the recent past, with the emergence of technological innovations, digital finance with a blend of new models, strategies and the development framework with inclusive financial innovation shows great connotation for business firms to emphasize innovative and competitive product market. Thus, financial digitalization and business environment development initiatives help improve the financial performance of business enterprises. This study further analyses the role of product market competitiveness on firm performance through the mediating role of digital financial innovation (Balsalobre, et. al., 2024).

The research results deliver a useful empirical and theoretical contributions to digitalization and product innovation. The findings support the antecedents of financial innovation and firm performance. The results indicate that digitalized innovation positively influences firm performance by offering innovative products and digitalization. The outcomes contribute to the literature on digital financial innovation, and the study recommends that business organizations should pay special attention to improving financial innovation and digitization in business firms (Balsalobre,et al., 2024).

Supporting Economic Participation: The stress given to the role of financial services in fostering financial development that is more inclusive is what defines the Financial Inclusion Theory. Crowdfunding platforms actualize this by allowing people from all the different socio-economic and geographic classes to participate in the financing of entrepreneurial ventures hence driving economic development and growth (Mollick, 2014). Empowering Marginalized Groups: Through the importance of financial services in the enactment of change for the disadvantaged in the society, crowdfunding platforms have ensured that female entrepreneurs, ethnic minority-owned business, and startups from developing regions give their contribution and are visible; this supports the theory's overall tenet of inclusiveness (Greenberg & Mollick, 2017).

Promoting Sustainable Development: Thus, the Financial Inclusion Theory in intention offers a sound economic development model. Crowdfunding is in concordance with this goal because it directs funds to projects that solve social, environmental, and economic problems, hence SDG support (Calic & Mosakowski, 2016).

Tan et al. (2024) examined the role of digital management and smart technologies in sports education, emphasizing the importance of green growth and tourism in dynamic environments. Their research underscores the potential of crowdfunding to support sustainable and innovative projects in various sectors, including sports and tourism(see also Wang, et al,2024). The role of mega-infrastructure development in enhancing tourism sustainability and quality of life, especially in the context of COVID-19 challenges, has been explored (Mamirkulova,et al., 2024).

A study by Hoque (2024) posits the role of policymakers in creating a conducive environment that fosters innovation through alternative financing. However, this study is limited by the availability of comprehensive data across different crowdfunding platforms and regions. Hence the study suggests that empirical research is imperative to generalize the findings across various contexts, deepen our understanding of crowdfunding's impact on innovation,

and develop strategies to leverage the potential of crowdfunding for innovation.

Methodology

Research Design

This research relies on the case comparison approach to analyse the effect of digital crowdfunding on global entrepreneurship. The study focuses on three significant cases: Crowdcube in France, The Republic's takeover of Seedrs and the Asia-Pacific region trends. Such cases describe successful strategies and issues that platforms face while embarking on the mission of decentralising global entrepreneurship.

Population

The target population for this study is composed of

- Businesspeople that have launched crowdfunding campaigns on Crowdcube, Republic, and other Asia-Pacific companies.

- Targets of the crowdfunding campaign comprised of those backers (investors) who participated in online funding programmes across different platforms.

- These are the platform administrators, crowdfunding consultants, as well as regulatory authorities in this context.

Data Collection and Sampling

As mentioned earlier, this study mainly used secondary sources of data collected from scholarly publications and databases, business reports, and cases. Credibility and relevance to the research problem were used to select the sources that would be used in the research. Adding to this, because of the limited number of articles that were included in the primary search, the snowball method was used, where the researcher started with a limited number of articles and then moved to the list of references in those articles in order to find more articles in that field.

Tools and Instruments

- The main working instrument in the metanalysis for this review is a comparative table. The following table presents the main case selection criteria and the differences between them in terms of fee model, criteria for client selection, campaign offering, key investors, success conditions, and the legal and cultural context.

- Data Extraction Tools: Employed to gather secondary data from the crowdfunding platforms including web scraping tools and APIs were accessible.

Research Procedure

Collect Secondary Data: Data Collection from Crowdfunding platforms; this must adhere to the corporation's ethical standards and terms and services as provided by the different platforms.

Data Analysis

When working with the main data collected from the crowdfunding platforms, the trend and active analysis of the campaign's success and the features of the platforms are identified.

Justification

The use of the comparative case study method is justified because it makes it possible to analyze a number of prepositions concerning different geographical environments for different types of crowdfunding platforms. This methodology offers a full understanding of the factors that affect crowdfunding outcomes and the role of crowdfunding in present day worldwide business volume by applying two research methods: quantitative and qualitative analysis. Many sources of data used to enhance the stability of the conclusions.

Thus, within the framework of this study's approach, the latter seeks to present a detailed and complex analysis of how digital crowdfunding platforms may advance the idea of the world's entrepreneurship opportunities, while underlining possible opportunities and challenges.

Table 1 – Summary of Results

Attribute/ Cases/Aspects	Crowdcube in France	Republic and Seedrs	Asia-Pacific Trends
Region	Europe (France)	Global	Asia-Pacific
Strategy	Quick fundraising	Market consolidation	Digital innovation
Outcome	€2.17 million raised in 21 minutes	Expanded reach and capabilities	Projected fast market growth
Key Factors	Efficient campaign execution, investor trust	Strategic growth, enhanced platform capabilities	Adapting regulatory landscapes, digital innovation

Attribute/ Cases/Aspects	Crowdcube in France	Republic and Seedrs	Asia-Pacific Trends
Platform Characteristics	- Fee: Percentage of funds raised -Selection Criteria: High, focusing on quality -Campaign Support: Extensive - Investor Demographics: Global, including institutional	- Fee: Percentage of funds raised - Selection Criteria: Stringent, quality-focused - Campaign Support: Extensive, enhanced post-acquisition - Investor Demographics: Global, diverse	- Fee: Varied, depending on local practices - Selection Criteria: Varied, some favor innovation - Campaign Support: Highly variable - Investor Demographics: Primarily regional
Success Rates	- Project Type: Technology and innovation perform well - Funding Goals: Realistic, well-defined targets - Marketing Strategies: Effective social media and community engagement	- Project Type: Broad, quality-driven selection - Funding Goals: Clearly defined, achievable - Marketing Strategies: Professional, extensive support	- Project Type: Preference for social/environmental impact - Funding Goals: Adapted to local market expectations - Marketing Strategies: Varies significantly by platform
Regulatory Environment	- Well-defined frameworks - Facilitates cross-border investment - Strong investor protection	- Harmonized regulations post-acquisition - Encourages cross-border investments - Enhanced investor protection	- Fragmented, varying by country - Some countries still developing frameworks - Cross-border investment challenges
Cultural Context	- High risk tolerance - Preference for equity crowdfunding	- Diverse, global investor base - Mix of risk tolerance levels	- More risk-averse in some regions - Varied preferences for crowdfunding models
Note – Compiled by authors, 2024			

This table offers a brief description of the major categories of crowdfunding platforms, success factors, legal requirements within the focal regions, and cultural conventions that impact investors' behaviour.

Results and discussion

1. Crowdcube in France: Also, this case explains the best practice of equity crowdfunding when navigating through a well-developed European market while showcasing how, with a strong investor base and engaging story, it is possible to fasten the proceeds' raise quickly.

2. Republic and Seedrs: The take-over by Republic shows that collaborations and mergers in the field of crowdfunding can increase the platform functions improve the scope of market coverage and create new products on the financial market.

3. Asia-Pacific Trends: The rapid development of the Asia-Pacific region proves the role of digital changes and public policy adjustments in developing countries. It signals the rise in interest in crowding as a model of financing brought by technological enhancement and the expansion of an entrepreneurial environment.

Every case captures certain aspects of the global crowdfunding environments and market and general tendencies of digital finance, thus, presenting useful information about the key forces behind the ongoing disintermediation of access to capital around the world.

Platform Characteristics

4. Crowdcube, Republic (post-Seedrs acquisition), and Asia-Pacific platforms differ significantly in their operational models: Crowdcube, Republic (post-Seedrs acquisition), and Asia-Pacific platforms differ significantly in their operational models:

5. Fees: Crowdcube and Republic work on the basis that they take a percentage on funds raised, while the platforms of APAC could differ, based on the current regional practices.

6. Selection Criteria: Crowdcube and Republic have filters to screen funding projects to ensure the quality of the projects listed are high. Frameworks on the platforms in the Asia-Pacific continent might be different since some countries may prefer such technology and innovation projects.

7. Campaign Support: This way, Republic takes advantage of the Seedrs acquisition to offer exhaustive campaign support. The support is also fairly

strong in Crowdcube, while the Asian-Pacific platforms are not always as supportive.

8. Investor Demographics: Thus, Crowdcube and Republic target international investors, including institutional ones Asia-Pacific platforms will likely be more regionally focused, with investor demographics reflecting local economic and social conditions.

What Works

Factors correlated with successful campaigns:

1. Technology / Innovation Project Success Rates: Technology and innovation-driven projects tend to perform best on Crowdcube and Republic. In Asia-Pacific, there's a strong preference for projects making a social and environmental impact.

2. Measurable Goals: Funding goals should be clear and achievable across all platforms. The better campaigns are the ones that set feasible goals relative to their audience size and network.

3. Marketing Strategies: Successful use of social media and community engagement are key success factors. Republic's campaigns benefit from professional marketing support, a practice that is quite inconsistent across Asia-Pacific platforms.

Regulatory Environment

Registration regulations have a major impact on platform operations:

1. Crowdcube and Republic: Investors can easily sign up and invest across borders, with established regulations for crowdfunding in respective geographies, ensuring investor security.

2. Asia-Pacific: The regulatory environment is more fragmented, with some countries having clearer guidelines but many still working on establishing frameworks. This affects platform operations and their ability to attract international investments.

Cultural Context

Cultural preferences and risk tolerance play a significant role:

1. Higher Risk Tolerance: Western platforms like Crowdcube and Republic cater to investors with a higher risk tolerance, focusing on equity crowdfunding.

2. Asia-Pacific: Platforms may need to navigate a more risk-averse investor base, impacting the types of projects funded and the preferred crowdfunding models (e.g., reward-based vs. equity-based).

Recommendations:

1. Policy Implications: Policymakers should work towards harmonizing crowdfunding regulations to facilitate cross-border investments and enhance investor protection. Establishing clear guidelines for crowdfunding operations in a globally seen tight regulatory environment can encour-

age innovation and entrepreneurship around the world.

2. Best Practices for Entrepreneurs: Entrepreneurs should focus on clearly communicating their value proposition, setting realistic funding goals, and leveraging social media and community engagement to boost campaign visibility and success.

Limitations and Future Research

This study is limited by the lack of specific platform data and a detailed examination of regional cultural impacts. Future research should explore in-depth comparisons of platform operations, investor behavior, and the long-term impact of crowdfunding campaigns across different regions.

Conclusion

The comparative analysis demonstrates a variety of crowdfunding techniques and outcomes, illustrating how platforms may be used creatively to meet regional demands and regulatory conditions. This study highlights the multidimensional nature of crowdfunding platforms across different contexts, looking at Crowdcube in France, Republic's acquisition of Seedrs, and growth trends in Asia-Pacific. Crowdcube and Republic, particularly after the Seedrs acquisition, show how established platforms in mature markets can leverage their strong investor base and campaign support structures to facilitate rapid fundraising, particularly for innovative projects with clear value propositions. Their success underscores the importance of building trust with investors and fostering a supportive environment for entrepreneurs. In contrast, the Asia-Pacific region represents a vibrant emerging market. The significant rise witnessed in this area demonstrates an increasing demand for alternative financing methods such as crowdsourcing, driven by factors like digital innovation and a thriving entrepreneurial ecosystem. However, platforms in this region face challenges due to fragmented regulatory frameworks and the need to adapt to risk-averse investor bases.

Finally, this research underscores the importance of crowdfunding in democratizing access to financing for global entrepreneurs. Crowdfunding platforms provide valuable channels for entrepreneurs, particularly those with creative ideas or operating in emerging markets, to secure funding by bypassing traditional gatekeepers and establishing a more inclusive financial landscape. To fully realize this potential, it is critical to address regional issues. The harmonization of crowdfunding regulations across borders, along with ongoing platform innovation to cater to diverse cultural contexts and investor

preferences, will be key to maximizing crowdfunding's positive impact on global entrepreneurship.

Overall, the study emphasizes the importance of regulatory settings and cultural contexts in determining the effectiveness of crowdfunding platforms. Crowdfunding platforms can thrive and attract diverse investor bases in regions with clear and supportive regulations, such as Europe and parts of the United States. Conversely, in regions with fragmented or immature regulatory frameworks, platforms may encounter significant obstacles to effectively democratizing access to capital. The research also highlights the significance of understanding local cultural norms and investor preferences. For example, platforms in Western countries often cater to investors with higher risk tolerance, focusing on equity crowdfunding, while those in Asia-Pacific may need to navigate more risk-averse investors and favor different crowdfunding models.

This research provides a detailed analysis of the current crowdfunding ecosystem and significant trends for global entrepreneurs. However, it acknowledges the limitations that come with relying on secondary data sources, which restrict the ability to delve into specific platform data or conduct in-depth cultural studies. Future research could involve primary data collection through surveys, interviews, or case studies to gain a deeper understanding of specific regional dynamics and the long-term impact of crowdfunding campaigns across areas.

In summary, this study contributes to a more nuanced understanding of the challenges and opportunities associated with global entrepreneurship in the crowdfunding era. By examining crowdfunding platforms in various regions with differing levels of development and regulatory frameworks, this research offers unique insights into optimizing crowdfunding for global entrepreneurs. It emphasizes the importance of digital platforms in democratizing access to capital and supporting global innovation and economic growth.

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DIGITALIZATION OF ACCOUNTING AND AUDITING AS A FACTOR IN INCREASING THE EFFICIENCY OF NATIONAL RESOURCE MANAGEMENT

National resources are an important element of economic development, determining the possibilities and prospects of the country, and their effective management contributes to the achievement of economic growth and prosperity of any country. Improving the quality of national resource management will significantly increase the output of the gross product. The accounting and auditing industry is critical in organizing management and making informed decisions in ensuring compliance with regulatory requirements for the efficient use of national resources. Recently, these industries have seen a shift towards digital transformation. Recently, these industries have seen a shift towards digital transformation, which in the modern world affects many aspects from business processes and technologies to employee competency assessment. And as a result, digital innovations have affected the accounting and auditing system. New accounting and auditing tools have emerged, making the system even more efficient and informative, which in turn contributes to the growth of prosperity in any country. At the same time, there is currently no model for the development of accounting and auditing that is being transformed in the direction of digitalization of the management of the country's national resources. The article reveals the features of the transformation of accounting and auditing associated with digitalization, and how this process contributes to the efficiency of national resource management. The object of the study was digital accounting and auditing technologies and their application in the management of national resources. The directions of modernization of accounting and auditing processes related to the use of digital data in the processing of reporting information, how to obtain financial information for its users today, using advanced digital technologies, and what impact technological innovations have on accounting and auditing of national resources are studied. The dialectical and empirical methods are used as the main methodological principles of the study. The main result of the study is a generalization of the stages of transformation of accounting and auditing processes in modern conditions of digitalization, aimed at improving the efficiency of managing the country's national resources. The results obtained can be used by economic entities to strengthen their competitive advantages in the context of global digital transformation.

Key words: accounting, audit, digitalization, electronic reporting, national resources, blockchain technology, robotization.

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Бухгалтерлік есеп пен аудитті цифрландыру ұлттық ресурстарды басқару тиімділігін арттыру факторы ретінде

Ұлттық ресурстар елдің мүмкіндіктері мен болашағын айқындайтын экономикалық дамудың маңызды элементі болып табылады және оларды тиімді басқару кез келген елдің экономикалық өсуі мен өркендеуіне ықпал етеді. Ұлттық ресурстарды басқару сапасын жақсарту жалпы өнім шығаруды айтарлықтай арттырады. Бухгалтерлік есеп және аудит саласы ұлттық ресурстарды тиімді пайдалану бойынша нормативтік талаптардың сақталуын қамтамасыз етіп, шешімдерді қабылдауға және басқаруды ұйымдастырудың негізі. Заманауи әлемде соңғы жылдары аталған салаларда бизнес үрдістер мен технологиялардан бастап қызметкерлердің кәсібилігін бағалау сияқты аспектілерді қоса алғанда, сандық трансформацияға қарай өзгеріс байқалады. Бухгалтерлік есеп пен аудиттің жаңаланған құралдары пайда болуда. Нәтижесінде жүйе бұрынғыдан тез және ақпаратты болған. Бұл өз кезегінде елдің әл-ауқатының өсуіне әсер етеді. Сонымен қатар, қазіргі

қатар, қазіргі уақытта елдің ұлттық ресурстарын басқаруды цифрландыру бағытында түрленді-руге болатын есеп пен аудитті дамытудың бірде-бір моделі жоқ. Мақала бухгалтердік есеп пен аудиттің цифраландырылуымен байланысты трансформациялау өзгешеліктерін және бұл үрдіс-тің ұлттық ресурстарды басқару тиімділігіне ықпалын сипаттауға арналған. Зерттеу объектісі цифрлық есеп пен аудит технологиялары және оларды ұлттық ресурстарды басқаруда қолдану болды. Сонымен қатар, шаруашылық қызметтің ақпаратын өңдеуде сандық деректерді қолдану-ға байланысты бухгалтерлік есеп пен аудитті жүргізуде заманауи технологияларды және инно-вацияларды пайдалану ұлттық ресуртардың есебі мен аудитін ұйымдастыруға әсері зерттеледі. Зерттеу жұмысының негізгі әдіснамалық қағидалары болып диалектикалық және эмпирикалық әдістері алынған. Зерттеудің басты нәтижесі елдің ұлттың ресурстарын басқарудың тиімділі-гін арттыру мақсатындағы, қазіргі замандағы цифраландыру жағдайында, бухгалтерлік есеп пен аудит үрдістерінің трансформация кезеңдерін жалпылау болып табылады. Экономикалық субъ-ектілер алынған нәтижелерді, жаһандық сандық трансформация жағдайында, өздерінің бәсеке-лестік артықшылықтарын арттыруда қолдана алады.

Түйін сөздер: бухгалтерлік есеп, аудит, цифрландыру, электронды есептілік, ұлттық ресурс-тар, блокчейн технологиясы, роботизациялару.

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Цифровизация учета и аудита как фактор повышения эффективности управления национальными ресурсами

Национальные ресурсы являются важным элементом развития экономики, определяющим возможности и перспективы страны, и их эффективное управление способствует достижению экономического роста и процветания любой страны. Повышение качества управления нацио-нальными ресурсами позволит существенно увеличить выпуск валового продукта. Сфера бух-галтерского учета и аудита имеет решающее значение в организации управления и принятии обоснованных решений в обеспечении соблюдения нормативных требований по эффективному использованию национальных ресурсов. В последнее время в этих отраслях наблюдается сдвиг в сторону цифровой трансформации, которая в современном мире, затрагивает множество аспек-тов от бизнес-процессов и технологий до оценки компетенций сотрудников. И как следствие цифровые инновации затронули систему учета и аудита. Возникли новые инструменты ведения бухгалтерского учета и осуществления аудиторской деятельности, благодаря которым система становится еще более оперативной и информативной, что в свою очередь способствует росту благосостояния любой страны. В то же время в настоящее время не существует какой-либо моде-ли развития учета и аудита, трансформируемой в направлении цифровизации управления нацио-нальными ресурсами страны. Статья раскрывает особенности трансформации бухгалтерского учета и аудита, связанные с цифровизацией, и как данный процесс способствует эффективности управления национальными ресурсами. Объектом исследования выступили цифровые техноло-гии бухгалтерского учета и аудита и их применение в управлении национальными ресурсами. Изучаются направления модернизации процессов учета и аудита, связанных с использовани-ем цифровых данных при обработке отчетной информации, как получать сегодня финансовую информацию ее пользователям, применяя передовые цифровые технологии, и какое влияние оказывают технологические инновации на бухгалтерский учет и аудит национальных ресурсов. В качестве основных методологических принципов исследования применены диалектический и эмпирический методы. Основным результатом исследования является обобщение этапов трансформации процессов учета и аудита в современных условиях цифровизации, направлен-ных на повышение эффективности управления национальными ресурсами страны. Полученные результаты могут быть использованы экономическими субъектами для усиления конкурентных преимуществ в условиях глобальной цифровой трансформации.

Ключевые слова: бухгалтерский учет, аудит, цифровизация, электронная отчетность, нацио-нальные ресурсы, технология блокчейн, роботизция.

Introduction

The digital economy, as we have already seen, is a modern reality. Digital technologies have become an integral part of social life and production processes. The most significant achievements of the digital economy today are – Robotics, Artificial Intelligence, Cryptocurrency, Blockchain technology, etc.

Digital technologies are capable of influencing the strategies and competitiveness of companies in the market, are constantly evolving and serve as pre-requisites for the modernization of many economic processes.

According to research, accounting is one of the most ancient and traditional tools of the economy. Throughout this time, the rules and methodology of this mechanism have remained unchanged. But with the advent of digital innovations, accounting and, as a result, auditing are undergoing major changes.

In the accounting area, where digital technologies are already used, the following positive aspects can be noted: increased transparency of information; the ability to continuously monitor information; increased consumer confidence in the results of the audit; reduced processing time for mega data and efficiency in preparing final reports.

This is the primary reason the IFRS Foundation has led the way in embracing and implementing digital technologies for many years, focusing on enhancing the IFRS taxonomy for electronic reporting. To achieve this, a dedicated electronic language for IFRS reporting was created, utilizing a specific licensed standard known as Extensible Business Reporting Language (XBRL), which essentially translates to «extensible business reporting language».

The primary goal of XBRL is to display financial statements in compliance with IFRS (Juhandi et al., 2022) and US GAAP in electronic form (Hoitash, R., Hoitash, U., Morris, 2020).

Electronic reporting has already become a pan-European law. The European Commission has done a lot of work to formulate requirements for listed companies preparing consolidated IFRS financial statements in electronic format. These requirements are part of a broader initiative to move the EU towards a single electronic reporting format (European Single Electronic Format), which should facilitate access and improve the transparency of financial information (Cati-Loredana, 2022).

Recognizing the importance and role of the IASB in developing a high-quality IFRS Taxonomy system, the IASB is simultaneously developing standards on information technology-related topics.

The digital transformation of accounting processes, in turn, entails changes in the tasks facing the audit. The use of automated data processing contributes to high-quality audits and allows for a more thorough identification of possible risks, as well as the prompt analysis of the resources used by companies. Such modernization of audit increases transparency, resulting in a high degree of confidence in the reliability of audit results.

As part of this work, the directions for modernization of accounting and audit processes related to the use of digital data in the processing of reporting information are studied, how to obtain financial information for its users today, using advanced digital technologies, and what impact technological innovations have on accounting and audit tools in general.

Literature review

The development of accounting as an economic science is historically closely linked to the processes taking place in the economy. In mid-2000, the leaders of the G8 countries signed the Okinawa Charter for a Global Information Society, marking the entry of developed countries into a new era of digital development in the 21st century. (Okinawa Charter, 2000) The document noted that information and communication technologies were becoming a key factor in the global economy and were intended to contribute to the mutually reinforcing goal of sustainable economic growth. At the same time, one of the main tasks is the need to reduce the gap in digital technologies.

In the Address of the President of the Republic of Kazakhstan K-Zh.K.Tokayev dated 10, 2018 the first steps towards a new Kazakhstan and a new world of the fourth industrial revolution were outlined, for this purpose, it was proposed to begin developing a third five-year industrialization program dedicated to the formation of industries adapted to the «digital era». The speech also proposed initiating a large-scale systemic program for the development of a new digital economy (Tokayev, 2018). Earlier, in order to accelerate the pace of development of the Kazakh economy and improve the quality of life of citizens, a comprehensive program «Digital Kazakhstan» was adopted, in which the formation of a national digital economy in Kazakhstan was designated as one of the directions of such development. At the same time, three main principles were defined for the Digital Kazakhstan program: digitalization of key industries, introduction of the latest technologies and use of digital approaches.

The situation with the coronavirus pandemic has accelerated the pace of digitalization of all economic processes several times over.

The IFRS Foundation has undertaken a number of activities to share the global concern about the impact of the coronavirus pandemic and to support stakeholders. In December 2019, the IASB published guidance on how to prepare financial statements in the context of the pandemic. Then, it published an updated version of the Taxonomy of International Accounting Standards based on IFRS standards as of 1 January 2020 (including those issued but not yet effective). Then, in August 2020, the IFRS Foundation approved amendments to IFRS 16 to reflect new accounting rules for rent concessions arising from covid-19. Finally, on 8 October 2020, the Financial Reporting Council (FRC) proposed that all business reporting, including financial statements, be published digitally (FASB Staff, 2020).

The main argument of the Council was that companies' annual reports are too long and the information is difficult to access. Many companies and users face significant challenges in preparing and analyzing the information contained in their reports, and the Covid-19 pandemic has made this situation even more difficult (FRC, 2020).

In domestic economic science, there is an insufficient number of studies devoted to the analysis of the transformation of accounting and audit processes of national resources. Among the available scientific works, it would be worth highlighting the work on the development of digital audit in the Republic of Kazakhstan (Berezuk, 2024). According to the author, the rapid development of digitalization of audit will strengthen the country's economic security and its further development. In addition, it was concluded that there are problems in the Republic of Kazakhstan that negatively affect the process of digitalization of the economy of Kazakhstan. Consequently, it becomes relevant to conduct research aimed at both developing theoretical foundations for this problem and studying best practices in the digitalization of accounting and audit processes. Most of the studies on this topic are carried out by foreign authors. Let us consider the most famous of them.

As already noted, developing digitalization affects all stages of the accounting process – from the formation of reports to the processing of their indicators. The use of current computer technologies and communication tools has significantly increased the number of possibilities for presenting the results of the accounting process, and the use of blockchain technology in the banking and financial sector has entailed fundamental changes in the accounting system (Khurana et al., 2024; Bagrii, et al., 2024). Blockchain technology can be widely used in the preparation of reports, their coordination and approval, as well as at different stages of their audit (Hongdan Han et al., 2023).

There are different points of view on the benefits of using the blockchain idea for the accounting and auditing system. Firstly, the blockchain idea is considered as a mechanism that prevents fraudulent activities (Pineda, et al., 2024). Secondly, blockchain technology is capable of forming a realistic, verified and transparent accounting ecosystem (Kupenova, et al., 2022). At the same time, in the current conditions, the implementation of accounting on the blockchain is technically impractical due to its low speed and high energy consumption (Mohsina, et al., 2024). Other experts believe that blockchain is capable of changing the current accounting and auditing practices, as it provides an accurate, timely and automated data confirmation system. (Danach, et al., 2024).

Well-known international accounting organizations such as ICAEW, the Association of Chartered Certified Accountants (ACCA), the Chartered Institute of Management Accountants (CIMA), the Chartered Institute of Fiscal Accountants (CIPFA) and the International Federation of Accountants (IFAC) have published a lot of information on their websites about blockchain technology. Deloitte, EY, KPMG and PwC, the world's largest network of audit and consulting firms, are actively implementing blockchain in their businesses to fully meet the rapidly changing needs of their clients (O'Neal, 2019). For example, Deloitte created its Rubix division and launched a plug-and-play blockchain product (Leung, 2016; Palmer, 2019). EY introduced a blockchain analyzer platform to support auditors' reconciliations, PwC released cryptocurrency audit software and updated its Halo tool for this purpose, KPMG is collaborating with Microsoft to create blockchain-based services (O'Neal, 2019).

In addition, there is a study that proves that blockchain technology will affect the database mechanism of accounting information systems (AIS) simply because all the existing paper checks will be digitized (Tan and Low, 2019). It is also believed that the technology can provide secure storage of accounting data such as accounts payable and receivable (Dai and Vasarhelyi, 2017) and improve the efficiency of transaction recording (ICAEW, 2018). Deloitte (2017), McWaters (2016) and other researchers (Jayalakshmi, 2024) have identified ways in which blockchain technology can address current accounting and auditing system challenges,

including simplifying the transaction recording process, reducing settlement times and counterparty risk, and minimizing fraudulent transactions.

All of the above suggest that there is a need to consolidate the advanced modern digital technologies used in the accounting and audit process.

Methodology

To investigate the issues discussed in this work, various general scientific methods were employed, including theoretical generalizations, empirical comparisons, scientific abstraction, expert-analytical evaluation, and cause-and-effect analysis.

To begin with, the study's theoretical and methodological framework was established using scholarly articles from respected researchers in the digital transformation field, which were published in prestigious journals. Following that, a thorough literature search was performed using keywords pertinent to the research topic. Additionally, recognizing the ongoing evolution of digital technologies, the study also explored relevant industry literature, such as reports, blogs, and news articles about cutting-edge digital advancements. This strategy enabled us to encompass a broad spectrum of literature on the latest technologies associated with the digitalization of economic processes, particularly focusing on innovative approaches to accounting and auditing.

We examined pertinent sources from Scopus, the largest database of abstracts and citations for peer-reviewed literature, utilizing search terms such as «digitalization», «accounting», «electronic reporting», «blockchain», «robotics», «accounting process», and «audit». Since our research intended to pinpoint trends in the development of accounting and auditing amidst digitalization, we refined our search results to concentrate on journal articles and particular subject areas such as Business, Management, Accounting, Economics, and Reporting. As a result, the study's theoretical framework was based on the contributions of notable modern scholars and practitioners dedicated to improving accounting and auditing processes associated with the collection, consolidation, and analysis of data regarding the use of national resources during the transition to digital technologies. The challenges surrounding the global transformation of accounting and auditing systems, influenced by the information potential of the current economic landscape, are particularly pressing at this time.

The research employs a systems approach to examine how innovative digital technologies are reshaping accounting methods within the accounting process.

The study primarily utilizes empirical methods as its foundational methodological principles.

In the context of the methodological aspect of our study, we drew attention to the works of many leading scholars, including those by Dai and Vasarhelyi (2017), as well as Jayalakshmi (2024), who proposed the use of blockchain for reporting and auditing processes. Our study also considered the potential of the new electronic reporting language, XBRL International, which is recommended by the IFRS Foundation. This method is important, as electronic reporting is gaining increasing popularity worldwide, especially in the accounting of public funds. The study primarily utilizes empirical methods as its foundational methodological principles. We have examined various sources of information. In the methodological context of our study, we have highlighted the works of leading scholars, such as Dai and Vasarhelyi (2017) and Jayalakshmi (2024), who proposed the use of blockchain for reporting and auditing processes. Our study also explores the potential of the new electronic reporting language, XBRL International, recommended by the IFRS Foundation. This method is significant, as electronic reporting is becoming increasingly popular worldwide, especially in the accounting of public funds.

A key hypothesis of the research focuses on identifying which accounting and auditing methods are currently effective in global practice and determining their applicability in the context of global digital transformation. The principal outcome of this study is the synthesis of the stages of transformation of accounting and auditing processes under contemporary digitalization conditions.

Results and discussion

The digitalization of accounting and financial reporting is primarily influenced by the digital transformation of business processes.

The adoption of the Law of the Republic of Kazakhstan «On Informatization» in 2015 in the country marked the beginning of the development of digitalization of the country's economy and contributed to the formation of a new format of interaction between government agencies and Society. According to official data from the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan for 2023 (stat.gov.kz), the number of organizations using the Internet portal in the period from 2016 to 2021 (available official data) grew every year, as shown in the graph (Figure 1).
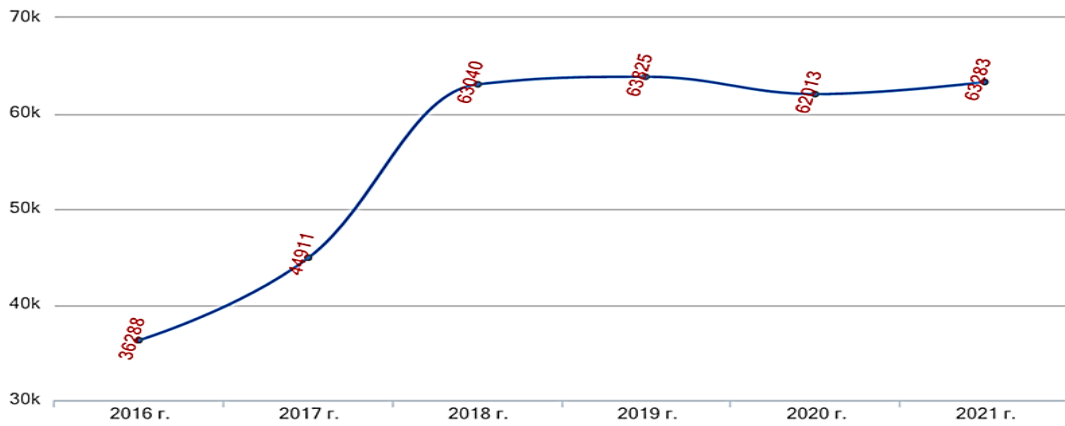
Figure 1 – Number of organizations using the Internet portal for the period 2016 – 2021
Note – compiled by the authors based on the source Bureau of National Statistics
of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan

It should be noted that the analysis uses the available official data on statistics of the Republic of Kazakhstan, therefore this study describes general trends in the field of application of information resources in Kazakhstani companies.

Having studied the statistics, we see that every year in our country more and more companies are involved in the information process. As evidenced by the growth in the number of organizations using the Internet portal, if in 2016 the number of such companies was 36.3 thousand companies, in 2021 their number increased almost 2 times and amounted to more than 63 thousand units. The peak of growth was in 2019, a possible reason for the growth was the pandemic, when many companies switched to a remote work format. Unfortunately, official statistics do not provide official data for 2022-2024, and therefore it is difficult to imagine what the state is now. Nevertheless, it can be concluded that the pace of digitalization is growing. This is evidenced by statistics by region (see Figure 2).
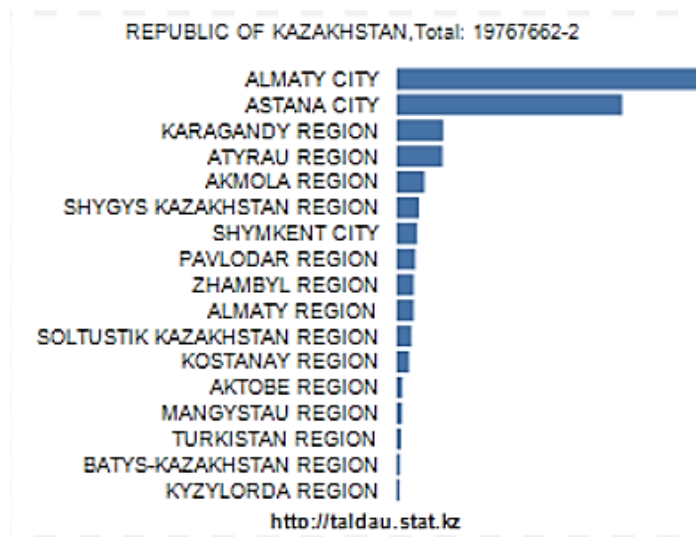
Figure 2 – Rating of the application of digital technologies in the regions of the Republic of Kazakhstan for 2023
Note – compiled by the authors based on the source Bureau of National Statistics
of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan

As can be seen from the graph, official statistics confirm that in every region of the country, the process of digitalization development is underway, which will entail the transformation of accounting and auditing processes.

Currently, the advancement of accounting and reporting within the framework of digitalization encompasses several key areas. (Figure 3):

1) the use of digital twin technology;
2) robotization of accounting operations;
3) using the idea of blockchain and the XBRL International language.

The first element of the accounting pyramid shown in Figure 3 – the reflection of transactions by primary documents is digitalized using digital twin technology. This method allows using sensors to create «live assets» that automatically generate primary documents for all economic transactions.

The main advantages of digital document management are presented in Figure 4. Business processes increasingly use electronic document management (EDM). Large and small companies are completely switching to paperless office work, as they see legal, analytical and business significance in this.
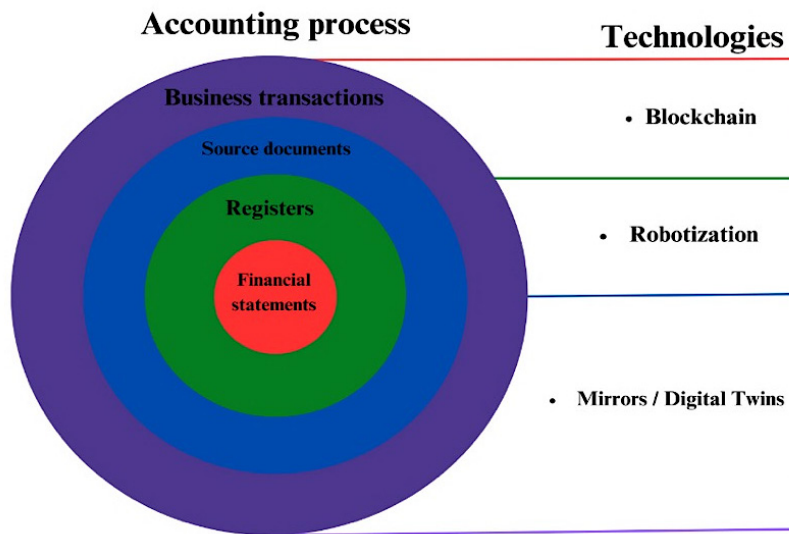
Figure 3 – Directions of digitalization of accounting and reporting
Note – Compiled by the authors

Business significance	Analytical significance	Legal significance
the ability to implement business processes using documents within a single information system	*the ability to use data from electronic documents that are accessible to many information systems in a single repository and exist in a single copy (single document entry).*	*the ability to present a document to regulatory authorities and courts, both during operational use and storage, and during long-term storage of documents.*

Figure 4 – Key benefits of digital document management
Note – compiled by the authors

In this case, electronic documents have legal force because:

1) various types of electronic signatures and technologies for their application are used;

2) storage and use in related information systems in the mode of operational access is in place;

3) long-term storage mode is in place;

4) the format of document presentation is changed (from paper to electronic, from electronic to paper).

It is important to note that the introduction of electronic digital signature (EDS) has become widespread in the Republic of Kazakhstan as a way of digitalizing accounting. According to the Law of the Republic of Kazakhstan «On Electronic Document and Electronic Digital Signature», EDS is equivalent to a handwritten signature and entails the same legal consequences under certain conditions. In addition, this provision recognizes the admissibility of using foreign EDS on the territory of the Republic of Kazakhstan. (adilet.zan.kz, 2003).

Below in Figure 5 are presented the types of electronic signature. In international practice in electronic document management, three types of signature can be used: simple, enhanced unqualified and enhanced qualified. The options for using an electronic digital signature can be very diverse (see Table 1).

Table 1 – Options for using an electronic signature

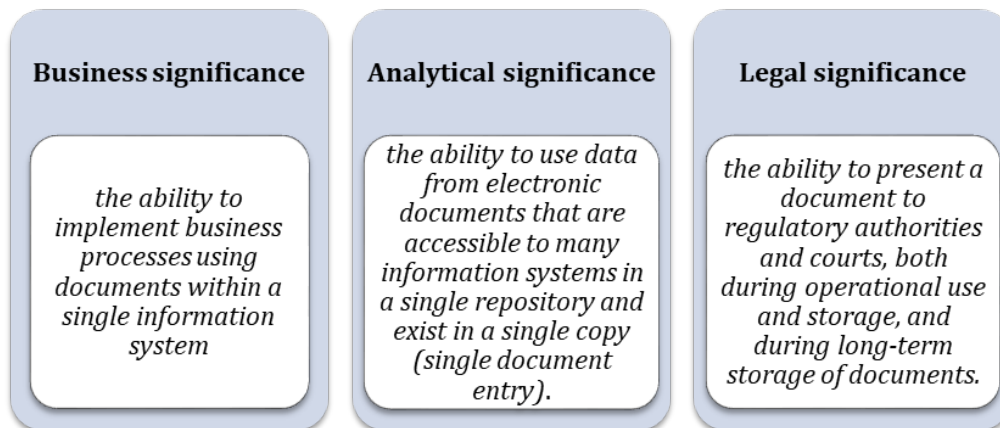| TYPES OF ELECTRONIC SIGNATURE	TASKS	CONDITIONS OF LEGAL FORCE
Simple Electronic Signature (SES)	Approval of internal documents not related to financial liability, coordination of documents	Presence of agreements between the parties.
Enhanced Unqualified Electronic Signature (UNES)	Authorization of external exchange documents and alignment of documents.	Presence of agreements between the parties
Enhanced qualified electronic signature (EQES), including cloud-based	Formal external document exchange with third parties. A cloud-based electronic signature is utilized in situations where using specialized software at an employee's workstation is not feasible or cost-effective, and where it's impractical to store electronic signature keys.	Without additional agreements, until the expiration of the certificate
Improved Enhanced Qualified Electronic Signature (IEQES)	A single archive of electronic documents with the ability to submit documents for inspection by regulatory authorities and to the court	Without additional agreements, during the period of validity of the document format and legitimate cryptography
Note – Compiled by the authors, source: adilet.zan.kz		

The next direction of accounting and reporting transformation within the framework of digitalization is the so-called robotization of accounting processes.

Robotization can be applied in the processing of various types of accounting operations implemented through the preparation of registers.

Digitization of accounting operations takes the form of robotization of the accounting function. A robot (chatbot) is a virtual workplace that executes algorithms according to a given scenario.

The process of identifying opportunities for automation starts with evaluating all current accounting procedures. Listed below are some criteria used to assess the advantages of automation for a business: a heavy workload, particularly in manual processing, the repetitive nature of standard tasks, and high labor intensity stemming from outdated and rigidly structured processes. A considerable portion of accounting tasks fits these criteria. The primary phases of automating accounting operations are illustrated in Figure 6.

Formation of electronic reporting is the next direction of transformation of the accounting process. Modern technologies offer the formation of reporting based on the digital standard of open international financial reporting XBRL and blockchain technology.

We believe that utilizing blockchain for reporting will enable tracking at different stages, such as before and after an audit, and before and after error corrections. This enhances the capabilities for users. Figure 7 illustrates the development cycle of blockchain technology.

A simple signature
- created by means of the information system in which it is used, and confirms that the electronic signature was created by a specific person;
- most often used in banking transactions, as well as for receiving government services, for certifying documents within a corporate electronic document management (EDM).

An enhanced unqualified electronic signature (UNS)
- created using cryptographic encryption programs using the private key of the electronic signature;
- identifies the owner and also allows checking whether the file has been changed after it was sent;
- used for internal and external EDM, if the parties have previously agreed on this.

The enhanced qualified electronic signature (QES)
- created using cryptographic algorithms and is based on the infrastructure of public keys;
- needed to submit reports to regulatory authorities, participate as a supplier and customer in electronic trading, work with state information systems, and conduct electronic document flow within the company or with its external counterparties.

Figure 5 – Types of electronic signature
Note – compiled by the authors

1. **Description of processes**
2. **Formation of the solution architecture**
3. **Object design**
4. **Chatbot development and testing**
5. **Commissioning and development of instructions**
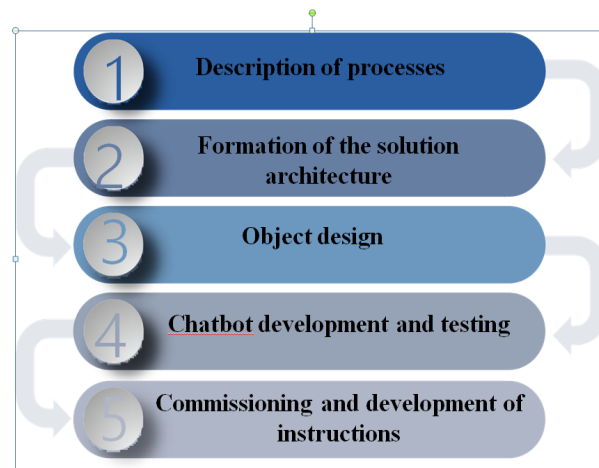
Figure 6 – Main stages of robotization of accounting operations
Note – compiled by the authors

Blockchain 1.0 mainly pertains to cryptocurrencies, which are utilized in a range of financial applications, such as transfer systems and digital payments. A new development has arisen from cryptocurrency transactions: crypto assets, which exhibit features of both intangible assets and financial investments. A key attribute of cryptocurrency is that it does not have a denomination, depends on cryptographic security, and employs wallets for conducting transactions; furthermore, the generation of cryptocurrency takes place through a process called mining.

Blockchain 2.0 is associated with smart contracts, which enable entire sectors of economic, market, and financial applications built on blockchain technology to engage with various financial instruments, including stocks, bonds, futures, mortgages, titles, smart assets, and smart contracts. The advancement of smart contracts promotes the full automation of transaction accounting and

creates a new transparent information landscape for developing innovative organizational structures of capital through intellectual capital.

In contrast, Blockchain 3.0 represents the concept of smart companies that go beyond mere monetary transactions, finance, and markets. A smart company exemplifies a unique organizational model of ownership.
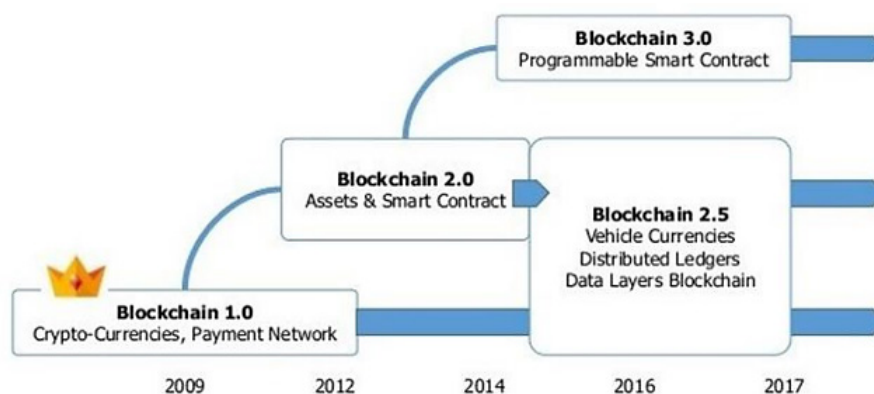

Figure 7 – Development of blockchain technology
Note – based on the source (Tapscott D., Tapscott A., 2018)

The process of digitalization significantly influences not only accounting practices but also the techniques and methods utilized in auditing. The audit mechanism is compelled to automate its processes, particularly with the emergence of integrated reporting that highlights the utilization of national resources.

It is important to emphasize that auditing encompasses more than just verifying financial statements; its primary mission is to provide independent and objective oversight, assess the targeted and legal nature of asset expenditures, and evaluate the appropriateness and effectiveness of management decisions related to resource utilization, including national resources. Consequently, I would like to draw attention to a specific type of professional audit activity that focuses on enhancing the efficiency of national resource management, particularly in areas such as public finances, production, and natural, human, and informational resources.

With the advent of digital technologies, the verification of the intended use of national resources has become much faster and more efficient. The productivity of auditors has increased, while the requirements for professional knowledge have also increased.

Auditor competencies should be adapted to market changes and should include such skills and abilities as the use of cloud computing, big data, blockchain and other IT trends of global digitalization. All this affects the quality of audit in the modern conditions of digitalization. Issues of high-quality audit have repeatedly become the subject of discussion among many scientists and practitioners.

In the past, digital technology audits (IT audits) were usually limited to identifying the types of information technology (IT) available and nothing more. Nowadays, with the growing role of IT in the business environment, the frequent use of the term «information» and the impact of information on business expansion, profitability growth, resource management, etc., audit requirements have increased. In recent years, technology audits and information systems audits have been used, which has influenced the change in the forms and methods of auditing (Anjum, et al., 2024).

Among the works devoted to the study of the impact of digitalization on audit and its quality, three studies should be highlighted (Tiberius, & Hirth, 2019; Güngör, & Adiloğlu 2019); and Schreuder, & Smuts, 2023). The study of these works allowed us to conclude that, among other factors in the devel-

opment of audit, two main trends in global business should be highlighted: digital transformation and strengthening of cybersecurity.

From this, we can infer that the quality of audits improves in the context of digitalization when an assessment is conducted to determine the impact of digital technologies on resource management, along with verifying their accuracy, efficiency, and reliability during the audit process.

This is a set of complex management, audit and technological actions that examine (check) the consequences, as well as the risks of using digital technologies, and ultimately assess their impact on the efficiency of national resource management. The digital technology market is constantly evolving, information is dynamic, which means that the requirements for auditors performing the audit (IT auditors) are always evolving and increasing. IT audit can and should ensure a more reasonable use of national resources. To achieve this, the reliability of internal controls within information systems is evaluated, focusing on how national resources are allocated and utilized. This involves assessing and analyzing management systems, procurement policies, and contracts, as well as ensuring effective change management.

In contemporary circumstances, IT auditors are expected to ascertain whether the internal control system has been properly designed and whether safeguards are implemented to ensure the safety and, crucially, the efficient use of national resources.

To do this, IT auditors are recommended to check and analyze the following three components of digital systems that manage these resources:

- availability (establishing how accessible information on the use of resources is);

- security (determining the degree of availability of resource data for authorized persons and all other employees of the organization);

- integrity (checking the accuracy, timeliness and reliability of resource data from information systems).

Thus, this will allow the IT auditor to give a full assessment of the security and reliability of the information system in relation to data on national resources. In addition, during the audit, it is necessary to check whether the company complies with the relevant legislation in the field of management and security of information data on resources. Based on this, the auditor's task is to assess compliance with applicable laws, rules and standards in force in the context of global digitalization.

As a result, IT auditors are responsible for assessing the security and reliability of the informa-

tion system based on resource data. In addition, the audit assesses whether the company complies with relevant laws and regulations regarding the management and security of resource information data. In this regard, the task of auditors is to provide their assessment of compliance with current legislation, regulations and standards in force in the context of global digitalization.

Conclusion

In conclusion, it is crucial to acknowledge that the digitalization of economic processes will profoundly alter accounting and auditing practices, requiring substantial changes in educational focus in these areas and the adoption of innovative tools.

The integration of blockchain technology is set to significantly affect the organizational frameworks of capital in the digital era.

The social consequences of digitalization are already affecting employment in higher-level positions and driving changes in educational systems.

Additionally, the digitalization of accounting is shaping the structure and features of software products, such as 1C, by integrating technologies like XBRL, blockchain, robotics, and digital twins.

The transformation of accounting processes related to the management of national resources consists of two main phases: digitization and implementation.

The first stage is digitization:

- internal document flow processes, and

- key accounting document flow processes.

The second stage involves the implementation and further development of:

- external (applied) digital document flow and electronic reporting;

- operational and archival services.

The audit activity on the use of national resources in the context of digitalization should include the following steps:

1. Analysis of the current state of the use of digital resources and the level of development and skill in the use of IT in the system of using information technologies.

2. Assessment of possible risks in the use of digital resources available in the information system for the use of national resources.

3. Providing recommendations for solving the identified problems, for example, improving the internal control system when using digital or other types of national resources.

The new digital economy requires updated accounting and auditing. And despite the fact that to-

day there are no accounting and auditing standards regulating the procedure for accepting for accounting or checking, for example, digital assets. Accounting and auditing are still among the factors influencing a business that is undergoing active digitalization.

Digitalization is advancing rapidly and is set to permeate all sectors and regions worldwide, including Kazakhstan. This trend is largely attributed to advancements in science and technology, coupled with substantial government support for the adoption of digital technologies.

As new technologies emerge, numerous economic processes within the country are evolving. Managing national resources necessitates swift, precise, and timely decision-making, which can be enhanced and streamlined through modern tools and techniques. These methods encompass the adoption of digital technologies in accounting and auditing, such as cloud servers, specialized software, block-chain, and electronic signatures. Furthermore, new tools and updated software are continually being developed, broadening the range of possibilities. Therefore, ongoing research into the entire spectrum of these processes is both feasible and essential.

Research Limitation: issues with insufficient or poor-quality statistical data for in the field of application of information resources in Kazakhstani companies limit the full interpretation of these indicators, which are indirectly related to the study's objectives.

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ENVIRONMENTAL TAX MECHANISM IN KAZAKHSTAN: THEORETICAL APPROACH

Rapid technological and economic development has posed serious environmental threats, with toxic emissions and waste accumulation affecting both developed and developing countries. The environment is greatly impacted by the release of toxic substances into the atmosphere and the accumulation of waste. To address these issues, the article explores the potential of using the tax system to implement environmental policy, focusing on Kazakhstan's transition to low-carbon development. The study aims to highlight the significance of environmental taxes and explore ways to reduce greenhouse gas emissions by analyzing Kazakhstan's existing environmental taxes and CO_2 emissions dynamics globally. To achieve this goal, the study employs a mixed approach, including a literature review and a statistical, comparative analysis of vehicle taxation policies in Kazakhstan, identified as one of the main sources of exhaust emissions. The significance of this work is underscored by the fact that, despite Kazakhstan's active participation in global climate initiatives, it remains the largest greenhouse gas emitter in Central Asia. Drawing on the experience of developed countries, which primarily address environmental issues through market mechanisms, Kazakhstan also needs to consider incentive mechanisms using tax instruments to ensure environmental safety and reduce the carbon footprint of its products. The study utilizes methods of comparison, analysis, synthesis, and summarization of scientific research and expert assessments. It is proposed to classify the transport tax as an environmental tax and improve its calculation by considering the vehicle's environmental class and year of manufacture. The practical significance of this work lies in isolating environmental taxes from other tax payments and clearly defining the directions for reforming Kazakhstan's tax system. Additionally, it is crucial to classify environmental taxes, develop usage methods, ensure proper distribution of revenues, and facilitate accurate international comparisons for sustainable development.

Key words: environmental pollution, environmental tax, Pigouvian tax, the «polluter pays» principle, transport tax.

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Қазақстандағы экологиялық салық салу механизмі: теориялық аспектілері

Қазіргі уақытта әлемдік экономиканың технологиялық және экономикалық даму ағынының жылдам өзгерістеріне байланысты қоршаған ортаға үлкен қауіп төніп тұр. Дамыған және дамушы елдердегі қоршаған орта атмосфераға улы заттардың шығарылуы мен тұрмыстық қалдықтар үйінділерінің пайда болуынан үлкен зардап шегуде. Мақалада осы аталған мәселелердің алдын-алу мақсатында Қазақстан өзінің даму бағыты ретінде төмен көміртекті дамуға көшуді анықтай отырып, экологиялық саясатын жүзеге асыру үшін салық жүйесін пайдалану мүмкіндіктері қарастырылған. Зерттеудің мақсаты – экологиялық салықтың мәнін ашу, сонымен қатар Қазақстандағы қолданыстағы экологиялық салықтарды, түрлі елдердегі СО2 шығарындыларының динамикасын талдау арқылы қоршаған ортаға парниктік газдар шығарындыларын азайту жолдарын қарастыру болып табылады. Осы мақсатқа жету үшін зерттеуде пайдаланылған газдар шығарындыларының негізгі көздерінің бірі ретінде Қазақстандағы көлік құралдарына салық салу саясатына әдебиеттерге шолу мен статистикалық, салыстырмалы талдауды қамтитын аралас тәсіл қолданылды. Жұмыстың маңыздылығы Қазақстан климаттың өзгеруімен күресу және парниктік газдар шығарындыларын азайту жөніндегі жаһандық үдеріске белсенді қатысушы болып отырғанына қарамастан Орталық Азиядағы парниктік газдардың ең көп эмитенті болып отыр. Дамыған елдердің тәжірибесіне сәйкес қоршаған ортаны қорғау мәселелерін бірінші

арқылы реттеуді жөн көреді, сондықтанда елімізде экологиялық қауіпсіздікті қамтамасыз етуге және өндірілетін өнімдердің көміртегі ізін азайтуға өз қызметі мен өндірісін бағыттауда салық құралдарын пайдалана отырып ынталандыру тетіктерін қарастыру қажет. Зерттеуде салыстыру, талдау, синтездеу, ғылыми зерттеулер нәтижелерін жалпылау, сараптамалық бағалау әдістері қолданылды. Зерттеудің негізгі нәтижесі ретінде көлік салығын еліміздегі экологиялық саясаттың құралы ретінде пайдалана отырып, оны экологиялық салықтар санатына қосу және оған салынатын салық сомасын көліктің классы мен шығарылған жылын ескере отырып есептеу механизмін жетілдіру ұсынылады. Жұмыстың практикалық маңыздылығы экологиялық салықтарды салық төлемдерінің жалпы жиынтығынан оқшаулау және Қазақстанның салық жүйесін одан әрі реформалау бағыттарын нақты белгілеу қажеттілігінде. Сондай-ақ, қандай салықтардың экологиялық санатына жатқызылу қажеттілігін анықтап, оларды пайдалану жолдарын әзірлеу қажет. Экологиялық салық түсімдерін дұрыс пайдалануды және халықаралық деңгейде салыстырулардың дұрыстығын қамтамасыз ету де елдің тұрақты дамуы үшін маңызды.

Түйін сөздер: қоршаған ортаның ластануы, экологиялық салық, Пигу салығы, «ластаушы төлейді» принципі, көлік салығы.

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Экологический налоговый механизм в Казахстане: теоретические аспекты

В настоящее время в связи с быстрыми изменениями в технологическом и экономическом развитии мировой экономики, возникла серьезная угроза окружающей среде. На окружающую среду в развитых и развивающихся странах большое влияние оказывают выбросы токсичных веществ в атмосферу и образование массивов бытовых отходов. В целях предотвращения данных проблем в статье рассматриваются возможности использования налоговой системы для реализации экологической политики, определяя переход к низкоуглеродному развитию как направление развития Казахстана. Цель исследования – раскрыть значение экологического налога, а также рассмотреть пути снижения выбросов парниковых газов в окружающую среду путем анализа существующих экологических налогов в Казахстане и динамики выбросов CO_2 в разных странах. Для достижения поставленной цели в исследовании использовался смешанный подход, который включал обзор литературы и статистический, сравнительный анализ политики налогообложения транспортных средств в Казахстане как одного из основных источников выбросов выхлопных газов. Значимость работы определяется тем, что несмотря на то, что Казахстан является активным участником глобального процесса борьбы с изменением климата и сокращением выбросов парниковых газов, он остается крупнейшим эмитентом парниковых газов в Центральной Азии. По опыту развитых стран, которые предпочитают регулировать вопросы охраны окружающей среды прежде всего через рыночные механизмы, Казахстану также необходимо рассматривать механизмы стимулирования с использованием налоговых инструментов для обеспечения экологической безопасности и снижения углеродного следа выпускаемой продукции. В исследовании использовались методы сравнения, анализа, синтеза, обобщения результатов научных исследований и экспертной оценки. В качестве основного результата исследования, используя транспортный налог как инструмент экологической политики в стране, было предложено включить его в категорию экологических налогов и усовершенствовать механизм исчисления суммы налога, учитывая экологический класс и год выпуска автомобиля. Практическое значение работы заключается в необходимости выделить экологические налоги из общей совокупности налоговых платежей и четко разграничить направления дальнейшего реформирования налоговой системы Казахстана. Также следует определить какие налоги должны стать экологическими, и разработать способы их использования. Обеспечение правильного распределения поступлений от экологических налогов и корректного международного сравнения также является важным для устойчивого развития страны.

Ключевые слова: загрязнение окружающей среды, экологический налоги, налог Пигу, принцип «загрязнитель платит», транспортный налог.

Introduction

At the present, rapidly developing stage of the economy, due to the rapidly changing technological and economic landscape of the world economy, a serious threat to the environment has emerged. In both developed and developing nations, environmental degradation occurs extensively due to toxic emissions released into the atmosphere and the proliferation of domestic waste landfills. Consequently, this article explores strategies for environmental preservation, such as the implementation of environmental taxes and levies. These measures have garnered increasing traction globally over the past decade as means to safeguard the environment.

The objective of environmental regulations is to mitigate the detrimental effects inflicted upon the environment and the influence of human activities on climate change. Conversely, environmental taxes are a direct approach to enhancing environmental quality in developed economies. Over time, several tactics have been developed to persuade different social and economic groups to reduce their environmental pollution. Emission permit trading and pollution taxes are two highly pertinent techniques. These tools have various effects on the extent to which businesses and households contribute to the overall effort to decrease harmful atmospheric emissions and protect the environment. They also impact the extent to which national and international environmental policies are successfully put into action.

Presently, the regulation and scope of greenhouse gas emissions in Kazakhstan encompass the inclusion of several mechanisms, namely the formation of a carbon budget, the implementation of carbon quotas, and the supervision of industrial plant operators. However, the system of levying taxes on emissions remains more efficient within individual countries compared to alternative approaches like carbon quotas or emissions trading. This is the situation in contemporary situations. Moreover, in Kazakhstan, the full potential of the taxation mechanism for environmental regulation has not been fulfilled, and the utilisation of tools such as taxes is not at an optimal level. This poses a concern as Kazakhstan is leading the way in terms of environmental regulation (Poberezhskaya & Bychkova, 2022).

In accordance with Article 128 of the Environmental Code of the Republic of Kazakhstan, enacted on January 2, 2021, No. 400-VI, and subsequently amended as of February 28, 2024, the designated authority for environmental protection has implemented market-based mechanisms to mitigate emissions into the environment. These mechanisms include setting emission limits, allocating emission quotas, and endorsing procedures for trading emission quotas and obligations aimed at reducing environmental emissions (Government of the RK, 2021).

Furthermore, to ensure economic viability, a zero coefficient is implemented in the payment rates for adverse environmental effects when acquiring a comprehensive environmental permit. Guarantee of purchasing electric power generated by facilities utilizing industrial waste energy is facilitated by the settlement and financial center. In addition, among other measures, government support is provided to ease the adoption and shift to «green» technologies and to encourage the attraction of «green» investments (Government of the RK, 2021).

Literature review

The established definition of environmental taxes was developed by the Statistical Office of the European Union, also known as Eurostat. According to this definition, an environmental tax depends on the physical characteristics of an entity that have a negative impact on the environment. Additionally, an environmental tax may apply to entities that are connected to the primary entity, causing a negative impact (Eurostat, 2021). This definition helps identify and classify environmental taxes for international statistical reporting and analysis (Eurostat, 2021). Such a unified definition of environmental tax is necessary for a full understanding and application of environmental taxes.

This definition is widely used by international organizations such as the United Nations (UN), the World Bank (WB), the International Monetary Fund (IMF), the European Commission (EC) and the Organization for Economic Co-operation and Development (OECD).

The theoretical and methodological basis of environmental taxation was established in the works of A.Pigou , R.Coase , G.Tullock , LHGoulder , J.Stiglitz , LIJacobson , W.Baumol , and others. Their contributions to the development of taxation as a policy instrument, including environmental taxes, were further expanded upon by D.Helm and D.Pierce .

A. Pigou's 1920 «The Economics of Welfare» underpinned taxes' ecological purpose. Negative externalities render the economy's resource allocation ineffective, which he first shown. Businesses lack private motive to spend more to avoid negative externalities without government participation. They always try to maximise profit and output at the lowest cost. In this case,

society will pay more for the enterprise's products due to external expenditures to offset harm. Thus, the market for commodities with negative externalities will be inefficient without tax adjustments (Pigou, 2017). Pigou suggested internalising externalities using environmental taxes, or Pigouan taxes, to reduce inefficiencies.

Pigou believes pollutants should be taxed to offset their environmental damage (Qiao & Chu, 2018). Governments can also align private and social marginal income for individuals with preferential tax policies (Feng, 2005). Environmental taxes reduces pollution and promotes tax reform and environmental industries. The majority of environmental levies in developed nations are energy taxes. Xu (2011) believes that an energy tax can affect the energy market, spur production technology, and raise energy conservation consciousness.

In his papers, Coase (2012) investigates negative external costs legally. He emphasises these costs. The study found that proprietors can handle external pressures without government intervention, reducing the need for low-cost taxes.

A taxable entity that harms the environment is the only criterion for an environmental tax, according to Eurostat.

Simply put, the introduction of a tax on any pollutant source qualifies as an environmental tax, irrespective of its calculation method or the designated allocation of its revenues. Consequently, this simplifies the nature of environmental taxation considerably. However, the practical implementation of these principles encounters significant obstacles. Baumol & Oates (1971) support the regulatory imposition of externally or ecologically focused taxes that are matched to society losses and adjusted in proportion to changes in those losses. Therefore, taxes are an adaptable tool for controlling environmental processes inside the framework of the economy.

The following simplified environmental (Piguan) tax categorization will help species understanding:

- Piguan direct taxes allow tax payments depending on the pollution source's calculated or measured emissions.

- Piguan approximation taxes add pollution estimates to indirect taxes. Tax payments depend on the expected pollution. Piguan approximation taxes are indirect.

Each sort of environmental tax helps implement an environmental function. Both sorts of taxation enhance the environment, but through different processes.

Approximation's main benefit is adding an environmental function to the tax system. As highlighted by McKay et al. (1990), this reduces state and enterprise administrative costs because each firm does not need a detailed emission control system. Thus, the government can use released monies for environmental conservation. Also, tax avoidance is much less likely.

Several reports by the OECD Centre for Tax Policy and Administration's Tax Policy and Statistics Department, the OECD Environment Directorate's Environmental Indicators and Information Department, the OECD Secretariat's Committee on Fiscal Affairs and the OECD Secretariat's Environmental Policy Committee (including a 2019 report) have praised emissions trading. However, the overall impression is that tax policy still plays a crucial role. Professors, experts and researchers in finance and economics argue that energy and carbon taxes can help prevent the climate problem from worsening, as economic and financial policies are global priorities. According to the eco-efficiency paradigm, such taxes are straightforward tools for influencing energy consumption habits and achieving sustainable development goals. Authors also note that «there remains significant potential for using taxation to improve the environment and mitigate climate change» (Kettner-Marx & Kletzan-Slamanig, 2018; He et al., 2019; Patuelli, et al., 2005; Carraro et al., 1996; Friedlingstein et al., 2020; Mazina et al., 2022).

The Intergovernmental Panel on Climate Change (IPCC) reports that 21% of global greenhouse gas emissions come from manufacturing, chemical processes, and industrial waste disposal.

It is important to highlight that a large number of international organisations support the practice of trading emissions. On the other hand, the academic community maintains that the only way to tackle climate change is through the implementation of environmental levies. According to the findings of scientists, environmental taxes are the most effective and straightforward measures that can be used to promote changes in the habits of individuals about their consumption of energy (Carraro et al., 1996; Patuelli, et al., 2005;Kettner-Marx & Kletzan-Slamanig, 2018; He et al., 2019; Friedlingstein et al., 2020; Li et al., 2023; Issayeva et al., 2023; Daniya & Tang, 2024). We are also of the opinion that the tools of taxes are effective in reducing the effects of climate change.

The Intergovernmental Panel on Climate Change (IPCC) reports that 21% of greenhouse gas emissions come from manufacturing, chemical reactions,

and industrial waste disposal (IPCC, 2015). These findings emphasise the necessity for aggressive environmental protection. Lin and Zhi (2019) propose that energy taxation can reduce carbon emissions, conserve energy, and enhance the environment. Tax measures that encourage better energy use and discourage carbon-intensive activities can help us move towards a sustainable future. However, only by taxing industry can emission reduction goals be achieved. Olson (1984) states that countries without energy taxes will suffer greater welfare losses than those with taxes. Kyle (2018) confirms this by referring to Pennsylvania, where the lack of a gas tax has had a strong negative impact on social well-being, especially in the electric sector. Wesseh & Boqiang (2019) agrees, saying that a carbon tax could bring economic benefits through investments in renewable energy technology. Djula (2019) researched EU countries and came to the conclusion that increasing energy taxes and energy prices could reduce final energy consumption, especially in countries with low consumption levels. This confirms the importance of implementing an energy tax on a practical level.

Given the actual consequences of these findings, they hold significant significance for countries that are significant emitters of greenhouse gases but have inadequate energy and carbon tax policies. In addition, despite advancements in eco-friendly technologies and sustainable energy sources, this pattern persists even in nations classified as «developed». For instance, the average American generates carbon dioxide emissions at a rate that is 3.5 times greater than the global average per person, which is 4.8 tonnes per person (Jackson, 2019).

Hence, it is crucial to carefully evaluate the advantages and disadvantages of implementing tariffs on environmentally hazardous emissions. Furthermore, it is crucial to pinpoint areas where the generated revenue can be used more efficiently to decrease emissions, tackle environmental harm, and combat climate change at both a global and domestic level.

Methodology

The study is grounded on the theoretical and methodological concepts put out by national and international scholars who have analysed the environmental policy and protection measures implemented in various countries. The writers employed essential scientific methodologies, including literature surveys, a systematic and logical approach, as well as economic and comparative study of tax policy.

The literature review includes scientific and political publications that synthesize information and identify areas for further research. Using concepts from the theories of environmental taxes and political integration, a framework has been developed to clarify connections and provide a theoretical foundation.

Results and discussion

Kazakhstan, Central Asia's largest greenhouse gas emitter, is actively involved in the global climate change and greenhouse gas emission reduction effort. Kazakhstan has submitted an annual National Report on greenhouse gas emissions to the UN Secretariat since 2010, as required by the UNFCCC and Kyoto Protocol. It published its first Paris Climate Agreement report in 2021, committing to cut emissions by 55% below 1990 levels by 2030. Kazakhstan will reach this aim independent of international support.

The President of Kazakhstan issued Decree No. 577 on May 30, 2013, endorsing the "green economy" transition concept to promote sustainable economic development, environmental quality, population well-being, and Kazakhstan's overall well-being.

This concept offers a vision for shifting towards a «green economy» by delineating key objectives, detailing shared methodologies, and establishing fundamental principles for the transition.

It is worth noting that the governments of most developed countries of the world prefer to regulate environmental issues primarily through market mechanisms, which, in turn, encourage business representatives to direct their activities and production to ensure environmental safety and reduce the carbon footprint of their products.

Given the energy and carbon intensity of our economy, and the fact that coal generation remains Kazakhstan's primary energy source, it is not simple for the country to follow such a worldwide trend.

International organisations call for the elimination of hydrocarbon energy carriers at the same time because the gases they create during burning contribute to climate change and have a «greenhouse» effect.

The Government of Kazakhstan is taking action to lessen harmful emissions into the environment and the carbon footprint in manufacturing, as they are fully aware of the seriousness of the problem of the greenhouse effect's development and the detrimental effects it has on the ecosystem.

Statistics on CO₂ emissions by country

CO$_2$ generated by burning fossil fuels and defor-estation is a major source of greenhouse gases and a key determinant of countries' ability to mitigate the effects of climate change. Greenhouse gas (GHG) emissions from human activities disrupt the radia-tive energy balance of the Earth-atmosphere system.

The majority of emissions originate from the utilisation of energy in the transportation, manufac-turing, and residential sectors. The planet's carbon dioxide absorption is being impacted by notable transformations in agriculture and forests in recent times.

Therefore, carbon dioxide (CO$_2$) emissions play a significant role in contributing to the overall amount of greenhouse gases released into the atmo-sphere. Additionally, it is important to acknowledge that the combustion of fossil fuels and the process of deforestation both contribute to the emission of CO$_2$.

Worldwide carbon dioxide emissions resulting from the burning of fuel

We analysed the progression of carbon dioxide emissions resulting from the combustion of fuel by utilising data from the World Energy and Climate Yearbook (Fig. 1, Table 1).
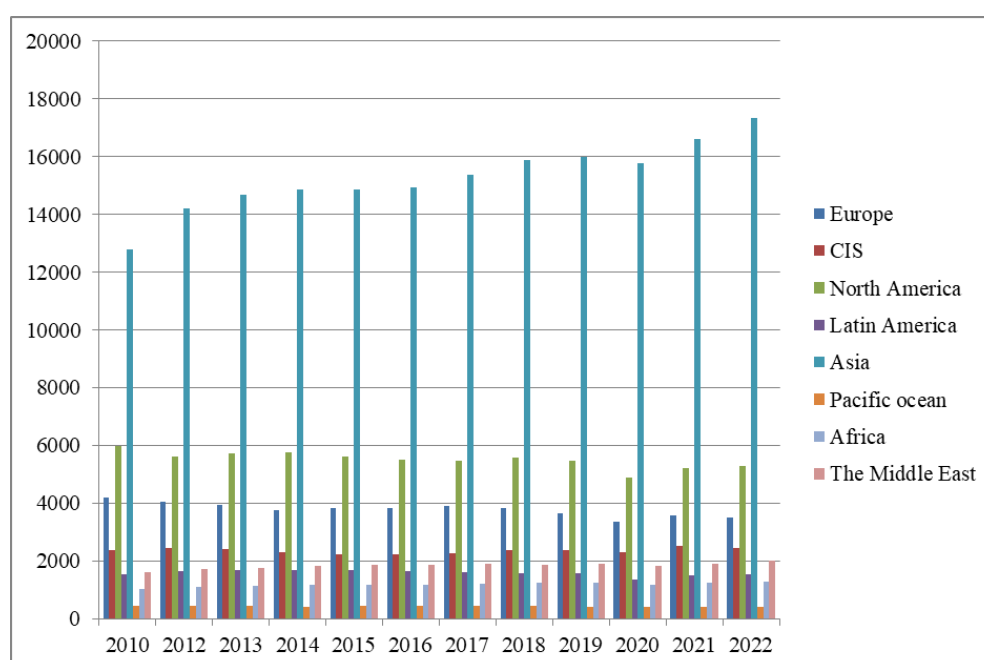
Figure 1 – The trend of MtCO$_2$ emissions from fuel combustion for the period 2010-2022
Note – compiled by the authors based on (International Energy Agency, 2023)

Table 1 – Trend of MtCO$_2$ emissions from fuel combustion for the period 2010 – 2022

	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	+/-.%
Europe	4179	4046	3946	3777	3833	3850	3904	3827	3656	3349	3587	3514	-15,9
CIS	2391	2465	2413	2300	2234	2237	2283	2379	2390	2292	2518	2458	2,8
North America	5992	5609	5720	5764	5617	5521	5467	5590	5465	4899	5224	5298	-11,6
Latin America	1522	1641	1682	1689	1681	1649	1628	1571	1558	1370	1505	1548	1,7
Asia	12774	14195	14665	14869	14865	14931	15368	15878	16008	15772	16603	17336	35,7
Pacific ocean	437	435	432	423	429	439	439	437	428	410	398	394	-9,8
Africa	1027	1096	1134	1179	1172	1186	1216	1239	1258	1167	1246	1268	23,4
The Middle East	1604	1730	1766	1832	1855	1869	1896	1879	1900	1838	1892	1995	24,4
Note – compiled by the authors based on (International Energy Agency, 2023)													

As the analysis of Table 1 shows, in the period from 2010 to 2022, a decrease in CO_2 emissions was observed in Europe by -15.9%, in North America by -11.6%, in the Pacific region by -9.8%. In the rest of the world, there is an increase in CO_2 emissions from fuel combustion, for example, in the CIS, the growth was 2.8%, in Asia by 35.7%, in Africa by 23.4%, the Middle East by 24.4%.

After stagnation in 2021 (+0.1%), the global intensity of CO_2 emissions decreased by 0.7% in 2022, which is much less than the average for 2010-2019 (-2.3% per year). The largest decrease was recorded in Europe (-5.7%, including -5.3% in the EU, due to a 2% reduction in CO_2 emissions) and in the Pacific region (-4.4%, including -4.7% in Australia). CO_2 emission intensity has shown a decline in North America (-0.7%) and Latin America (-0.9%) in recent years. The implementation of hydroelectric power plants in Brazil has significantly contributed to positive transformations in Latin America.

Regarding Asia, it is noteworthy that the rate of rise in CO_2 emissions there rose by 0.6%. Although there was an improvement in the situation in China, Japan, and South Korea, there was an observed increase in emissions in India, Indonesia, and the countries of Central Asia. It is worth mentioning that in oil-dependent countries, there is a rise in the generation of power from coal and gas, resulting in a detrimental increase in greenhouse gas emissions. Therefore, Saudi Arabia experienced a 10% rise, Mexico saw a 10% increase, and Asian countries witnessed an 8% growth. Regarding European countries, their carbon dioxide (CO_2) emissions have declined. For instance, Turkey experienced a decline of 2.7%, while the United Kingdom saw a fall of 2.6%. In 2022, there was a 0.7% decrease in global CO_2 emissions.

Using analytical data from Energystats.enerdata.net, we conducted an analysis of carbon dioxide (CO_2) emissions resulting from the combustion of fuel in various countries. This analysis was based on information shown in Table 2 and Figure 2.

In the period from 2010 to 2022, a decrease in CO_2 emissions was observed in the USA by -16.0%, in Sweden by – 24.5%, in Japan by -11.0%. In several other nations, there has been a rise in the amount of carbon dioxide emissions that are caused by the combustion of fuel. Among these countries, India has had the most significant growth, going up by 58.0%, Turkey by 44.9%, Russia and China by 36% and 35%, respectively.

Energy-related carbon dioxide (CO_2) emissions experienced a 2.5% rise in 2022, which is significantly lower than the 6% increase observed in 2021. Despite the current decline in the worldwide economy, carbon dioxide emissions have reached unprecedented levels, surpassing 33.8 gigatons.

Next, we consider the volumes of CO_2 emissions in the context of all countries of the world (Table 3, Fig. 3).

Table 2 – Autumn for the period 2010-2022 – Million tons of CO_2

Countries	2010	2012	2014	2016	2018	2019	2020	2021	2022	-/+,%
Great Britain	1027	1096	1179	1186	1239	1258	1167	1246	1268	23,4
Germany	1522	1641	1689	1649	1571	1558	1370	1505	1548	1,7
Russia	12774	14195	14869	14931	15878	-	15772	16603	17336	36,0
China	7798	8752	9166	9090	9601	9721	9859	10397	10504	35,0
USA	4179	4046	3777	3850	3221	-	3349	3587	3514	-16,0
France	1604	1730	1832	1869	1879	-	1838	1892	1995	24,4
Malaysia	2391	2465	2300	2237	2379	-	2292	2518	2458	2,8
India	1570	1810	2024	2059	2303	2266	2068	2281	2481	58,0
Turkey	276	308	319	351	389	380	380	412	400	44,9
Sweden	49	42	39	39	36	36	34	37	37	-24,5
South Korea	594	631	624	655	667	653	609	615	597	0,5
Japan	1123	1214	1172	1123	1070	1033	981	1003	1001	-10,9
Note – compiled by the authors based on (International Energy Agency, 2023)										
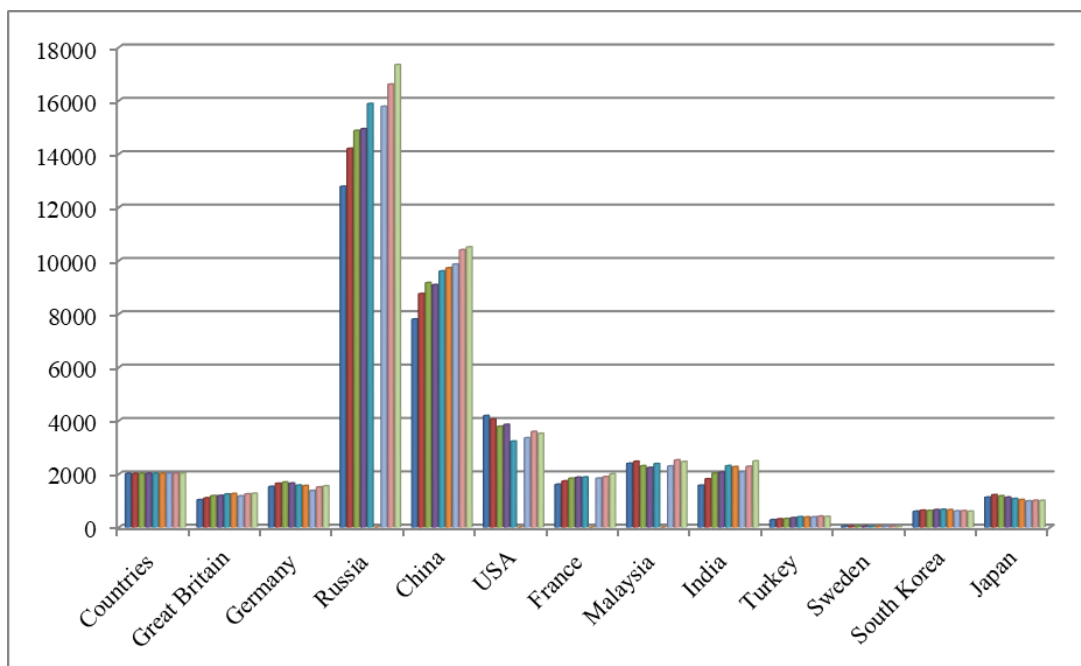
Figure 2 – Autumn for the period 2010-2022 – Million tons of CO_2
Note – compiled by the authors based on (International Energy Agency, 2023)

Table 3 – CO_2 emissions from all countries of the world (gigatons)

Years	1990	2000	2005	2015	2019	2020	2021	+/-2021/ 1990
CO_2 emissions (gigatonnes)	22,7	25,8	30,2	36,3	38,0	36,0	37,9	+67%
Note – compiled by the authors based on (International Energy Agency, 2023)								

Figure 3 – CO_2 emissions from all countries of the world (gigatons)
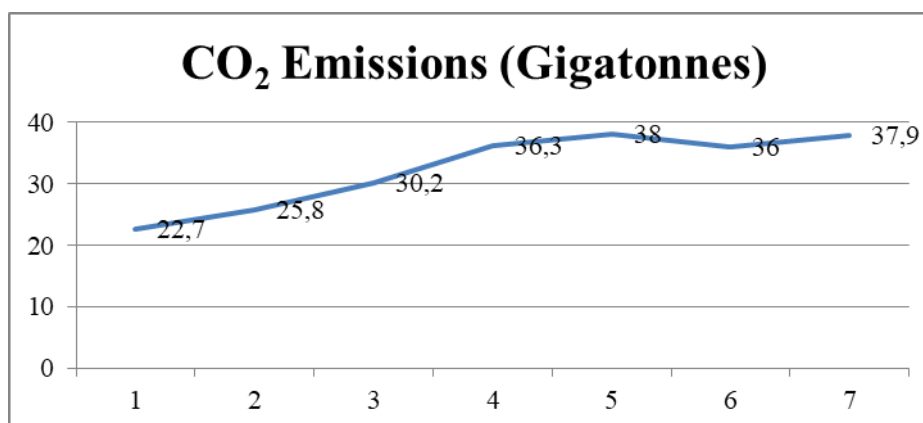Note – compiled by the authors based on (International Energy Agency, 2023)

China, the US, 27 EU members, India, Russia, and Japan continued to be the top emitters of CO_2 in the world in 2021.

Between the beginning of the twenty-first century and 2019, there was a progressive increase in the global emissions of greenhouse gases (GHG). This increase was mostly caused by an increase in CO_2 emissions, mainly in China and other industrialised and emerging economies. As a consequence of this, the natural greenhouse effect has a negative influence on life on Earth. This is because the amount of greenhouse gases in the atmosphere has significantly grown, which has led to the greenhouse effect.

Worldwide CO_2 emissions from fossil fuels fell 5.3% in 2020 compared to 2019, mostly as a result of the COVID-19 epidemic. Nevertheless, after a brief reprieve, the world's CO_2 emissions returned to their "pre-crisis" level in 2021, with the indicator hitting 37.9 gigatons, nearly 0.36% less than in 2019.

Taking into account the UN Framework Convention on Climate Change, countries are developing national emission inventories, proposing and implementing actions to reduce GHG emissions. CO_2 emissions, which are the main cause of global warming, are still rising globally, despite agreements to mitigate the effects of climate change (Table 4).

Table 4 – Dynamics of greenhouse gas emissions in Kazakhstan for 2010-2021

CO_2 emissions (million tons)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	315,8	302,5	303,4	306,9	355,8	361,2	366,8	385,8	401,6	364,6	351,2	340,8
Note – compiled by authors based on (National Bureau of Statistics of Kazakhstan, 2023)												

Kazakhstan's greenhouse gas emissions in 2021 declined by 0.37% compared to 2020, reaching a total of 340.8 million tonnes. A fall in total output, a decrease in passenger and freight traffic by all modes of transportation, and a decrease in total production are the primary causes of this decline. The COVID-19 pandemic is the primary cause of this decline. In addition, if we compare the emissions in 2021 to the base year of 1990, which is the year that serves as the baseline for Kazakhstan's responsibilities under the Paris Agreement, then we can see that the emissions in 2021 decreased by 10.35% more than the base year. There were 351.2 million tonnes

in 2020, which is 3.7% less than in 2019, while the increase was 11.2% when compared to the amount that was produced in 2010. It is important to note, however, that the growth in greenhouse gas emissions from 2012 to 2018 was only for seven years.

In the volume of all greenhouse gas emissions in the Republic of Kazakhstan, the largest share is occupied by the category "Energy industry", which accounts for at least 75.7% (261.9 million tons of CO_2-eq) in 2021, which is 17.4% less than the base level of 1990, 50.7% higher than the level of 2000. The agriculture sector is in second place: 12.4%. Industrial processes are in third place: 7.8% (Table 5).

Table 5 – Key indicators of greenhouse gas emissions by sector for 1990-2021

Name of the industry/ years	1990	2000	2010	2015	2019	2020	2021	+-2021/ 1990
Total national emissions	381,6	272,7	315,8	361,2	365,2	351,3	345,8	-9,4
Energy activities	316,9	173,8	247,1	296,3	294	272,5	261,9	-17,4
IPP (Industry and Products Processing)	19,3	12,3	15,8	20,8	20,9	22,3	27,1	40,4
Agriculture	44,7	26,1	32,7	32,8	38,5	40,7	42,8	-4,3
LULUCF (Land Use, Land-Use Change, and Forestry)	-	56,6	14,9	5,3	5,1	8,4	7,7	13,6
Wastes	4,6	3,9	5,3	5,8	6,7	7,4	6,3	37,0
Note – compiled by authors based on (National Bureau of Statistics of Kazakhstan, 2023)								

The Energy Activities encompass the sectors of manufacturing and construction, transportation, and various other industries. Analyzing the situation based on digital statistics, we can say that Kazakhstan is making rapid strides towards meeting the stated goal of reducing greenhouse gas emissions by 15% by 2030, although there are some problems here.

Our study looks specifically at the issue of the introduction of CO_2 taxes in Kazakhstan.

Author's Definition and Analysis of Environmental Taxes in Kazakhstan

Drawing from the preceding research, it appears that by the 1990s, there existed a relatively comprehensive comprehension of the nature of environmental taxes and the primary aspects of the environmental role of taxation. According to our point of view, an environmental tax is a levy that fluctuates in accordance with the degree of environmental damage that is generated by the utilisation or consumption of the taxable company. The structure of this tax system is determined by distinguishable tax components or the combination of such components.

This description offers a full grasp of the qualities that are associated with environmental taxes. The characteristics of this tax system are as follows: the tax base is chosen based on the physical attributes of the thing being taxed, and the tax should be collected directly from the source of pollution. If levying taxes directly at the source of pollution is deemed unsuitable, an alternative approach could be to target the enterprise that is linked to the source of pollution for taxation.

This viewpoint highlights the significance of creating a clear connection between environmental taxation and the environmental impact of activities or products. This emphasises the importance of aligning tax regulations with environmental objectives, in order to ensure that those who cause pollution bear the financial burden of the resulting consequences. Furthermore, it prioritises the practical aspects of implementing environmental taxes, acknowledging the challenges associated with directly identifying and taxing sources of pollution.

Assessing the magnitude of pollutants emitted by individual vehicles might be a difficult task. Automobile gasoline may be subject to taxation.

An environmental tax must serve the purpose of advancing environmental protection goals to be classified as such. To fulfill this requirement, the tax should possess both regulatory and fiscal functions, incentivizing taxpayers to favor organizations subject to taxation that exhibit superior environmental attributes.

This objective can be accomplished by modifying the tax burden in accordance with the level of pollution. This is only feasible when the tax burden is proportional to the level of environmental harm that the taxpayer is responsible for.

An environmental tax should serve the purpose of environmental protection. To achieve this, it must encompass both fiscal and regulatory functions. Through its regulatory function, an environmental tax encourages taxpayers to favor enterprises that demonstrate higher environmental performance. This is accomplished by adjusting the tax burden based on the level of pollution. For instance, tax incentives for environmentally friendly transportation motivate owners of other vehicles to opt for such cars.

Upon inquiry, it was shown that the transport tax in Kazakhstan has no regulatory effect. Since the tax is determined by engine power rather than its environmental impact, there is no way to establish a direct relationship between the tax amount and pollution levels. Therefore, the authors of this essay propose recommendations for altering the tax distribution system.

In order to underscore the lack of motivation for taxpayers to mitigate their detrimental impact on the environment, it is crucial to highlight that the magnitude of their tax payment is not contingent upon the extent of this influence. In the European Union (EU), the majority of environmental taxes, specifically 78%, are attributed to energy taxes, while transport taxes make up 19%. According to the International Energy Agency (2019), barely 3% of the overall budget is allocated specifically for levies that target the reduction of environmental pollutants.

Take advantage of the statistical data to gain insightful knowledge. Based on the information presented in Table 6, Kazakhstan has just four distinct types of environmental levies. The proportion of «energy taxes» accounts for around 67 percent of the total in 2021.

Tax collection from energy taxes has experienced a rise from 2017 to 2021. A number of factors, including energy consumption patterns, growing energy prices, and the implementation of energy-efficiency programmes, are among the factors that have contributed to this progression.

Among environmental taxes, «Taxes on environmental pollution» in terms of tax revenues account for about 4.9% of the total environmental taxes. In 2021, the increase in tax revenues from them amounted to 53% compared to 2017.

Table 6 – Environmental taxation in Kazakhstan, million tenge

Type of environmental tax*	2017	2018	2019	2020	2021	+/-. 2021 /2017, %
Energy taxes	1 213, 0	1 654, 2	1 706, 4	881,7	1 529, 1	26
Transportation taxes	64, 3	72,1	78, 3	63, 4	77, 6	21
Taxes on environmental pollution	72, 5	87, 1	100, 8	85, 6	111, 0	53
Taxes on the use of resources	284, 6	335, 1	394, 4	359, 2	488,0	71
Total environmental taxes	1 634, 5	2 148,6	2 280,0	1 390,0	2 268,6	35
Share of environmental taxes to total tax revenues, %	23,9	31,5	24,7	16,2	17,4	-
Share of environmental taxes in GDP, as a percentage	3,0	3,5	3,3	2,0	2,2	-
Note – compiled by authors based on (National Bureau of Statistics of Kazakhstan, 2023)						

The category "taxes on the use of resources" yields 21.5% of the total amount collected through environmental taxes. The revenue generated by these taxes in 2021 was 488.0 million tenge, a 71% increase over 2017. Over the previous five years, there has been a 53% increase in taxes on the utilisation of resources.

Transportation taxes include fees related to the use and ownership of vehicles. It is important to remember that energy taxes are different from transportation taxes in that they apply to petrol, diesel fuel, and other transportation fuels.

Although the percentage of revenue from transportation taxes in total environmental tax revenue is approximately 3,4% of the total budget revenue, this doesn't imply that vehicles have a diminished impact on environmental pollution. Statistical data indicates a rising trend in Kazakhstan in the collection of transportation taxes, attributed to the annual growth in the number of vehicles in the country.

As of November 1, 2023, the number of registered vehicles in Kazakhstan amounted to 5 million 216 thousand, of which 88 percent were passenger cars, 9.9 percent were trucks and 2.1 percent were buses.Наибольшее число автомобилей в Казахстане имеют солидный возраст.

As of March 1 of this year, more than 1 million 980 thousand passenger cars older than 20 years were registered in the country. And then in descending order:

- 20 years and older – 1,980,000 cars;
- from 10 to 20 years old – 867,378 cars;
- from 7 to 10 years old – 574,014 cars;
- from 3 to 7 years old – 356,223 cars;
- up to 3 years old – 250,590 cars.

Almaty region is among the leaders in age-related cars, 318,432 passenger cars older than 20 years are registered there. There are many such cars on the roads of Almaty (179,882 units), Karaganda region (157,646) and East Kazakhstan Region (154,179). There are much fewer old cars in Astana, 74,519 units. The largest young car fleet is registered in Almaty – 41,030 cars no older than three years. Next are Astana (33,635 units) and Karaganda and Almaty regions (15,643 and 15,428 cars, respectively).

In Kazakhstan, there are an average of 18.5 personal cars per 100 people. The lion's share of cars in the country is in private hands. Among passenger cars, this is 3 million 820 thousand 624 units (for legal entities – 213,823 cars), trucks – 279,927 (174,569), buses – 44,200 (51,383).

According to the Bureau of National Statistics, in Kazakhstan, the provision of a private car per 100 people is on average 18.5. The areas of East Kazakhstan (37.4), Almaty (31.1), and Karaganda (23.6) have the highest rates of personal car ownership among their residents. Furthermore, the individuals residing in the Turkestan (7.8), Kyzylorda (11.8) areas, and the city of Shymkent (10.8) are the most economically disadvantaged in the nation, omitting the population from newly established regions. The current value of this specific indicator is 20.3 in Almaty and 19.5 in Astana.

The transport tax, which is collected from car owners, goes to repair and maintain roads in the country. In Kazakhstan, currently, as everyone knows, the transport tax is calculated based on the volume of an automobile engine (Government of the RK, 2021). That is, it doesn't matter how often you drive on these very roads, wearing them out. Even if your car is parked in the garage for weeks, you have to pay the same as a neighbor who drives all day long if the engine capacity of your cars matches.

The authors propose a revision to this computation approach that takes into account the age, environmental classification, and volume of the vehicle. In addition to improving the method of calculating payments, this plan would classify it as an environmental tax, making it an instrument of environmental policy. In addition, these are examples of significant changes that have been made to the tax system and laws in order to protect the environment and ensure that it will continue to exist in the long run.

In neighboring Russia, there has been ongoing discourse regarding the fairness of the current format of the transportation tax. According to some opinions, a fairer approach would involve drivers paying based on the usage intensity of their vehicles. However, this payment wouldn't be in the form of taxes but rather through fuel excise taxes, where approximately 20% of the price per liter of gasoline constitutes the excise tax.

However, Kazakhstan has yet to establish a framework for an environmental tax, and there is no provision for it in the Tax Code of the Republic of Kazakhstan. Given the current state of the tax system in Kazakhstan, addressing this gap is imperative.

When it comes to human health and the ability to maintain human life, it is of the utmost importance to acknowledge that environmental degradation is generally associated with negative consequences. It is not the loss of nature itself that is the root cause of environmental problems; rather, it is the adverse effects that environmental degradation has on the well-being of humans.

The expanding proliferation of automobiles is a significant component in the worsening of the greenhouse effect, eventually leading to severe implications for the environment and further degrading living circumstances for the general public. Because of this, the primary goal of introducing an environmental tax is to reduce the losses that are paid by the general population. This entails:

- quantifying the monetary valuation of the environmental degradation engendered by the taxpayer;

- compensate these people or groups for their losses, serving as a form of monetary compensation for harms endured.

Conclusion

The shift towards environmental-focused taxation represents the integration of ecological concerns into the tax framework, where existing taxes acquire a supplementary role as instruments for environmental governance. This transformation enhances the socio-economic role of taxes within the national economy. Taxes start to affect manufacturing practices that society finds objectionable and encourage people to consume fewer products that hurt the environment. Revisions to Kazakhstan's transport tax computation methodology that would recast it as an environmental tax are consistent with the movement worldwide in taxes towards environmental sustainability.

Kazakhstan needs to define its own definition of environmental tax in this particular scenario. This is crucial from a theoretical and practical standpoint. Understanding the distinct categorization of environmental taxes among all tax contributions is crucial for grasping the avenues toward further reform of the Kazakh tax system. It assists in determining which taxes are appropriate for environmental designation, addressing the need to add new taxes and amend current ones, carrying out the nation's environmental policy more thoroughly, coming up with plans for using tax revenues, and guaranteeing the accuracy of comparisons with other countries.

Acknowledgment, conflict of interest

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IMPROVING STRATEGIC MARKETING PLANNING IN THE FORMATION OF DEVELOPMENT PRIORITIES FOR MONOTOWNS IN THE REPUBLIC OF KAZAKHSTAN

The importance of the research is highlighted by the special role of monotowns, which are closely monitored by the government as they face growing socio-economic issues while also playing a crucial role in the country's economy. This article aims to develop and test a methodological approach to strategic marketing planning for establishing development priorities for monotowns in Kazakhstan. The study presents monotowns analyzed over different periods: 27, 20 and 9 monotowns of Kazakhstan. Current and future priorities for 9 monotowns are defined based on available statistical socio-economic indicators grouped by areas of territorial marketing. The research objectives include developing a methodological approach to strategic marketing planning, conducting typology, identifying the advantages and disadvantages of monotown development, creating a simulation modeling tool for socio-economic development using artificial intelligence technology, and determing strategic priorities development of monotowns. Data collection, processing, and analysis methods include content, comparative, factor, and cluster analysis, typology, and artificial intelligence modeling methods (supervised learning, error correction, BFGS optimization). The STATISTICA software version 13 was utilized for data analysis and forecasting. The results indicate that the strategic marketing planning tools developed are useful for establishing scientifically grounded development priorities for monotowns in Kazakhstan. This research is beneficial for government bodies aiming to devise socio-economic development strategies for monotowns.

Key words: monotown, strategic marketing planning, typology, development priorities, factor analysis, cluster analysis, simulation modeling.

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Қазақстан Республикасындағы моноқалалардың даму басымдықтарын қалыптастыруда стратегиялық маркетингтік жоспарлауды жетілдіру

Зерттеудің өзектілігі мемлекет тарапынан аса назар аударылып отырған моноқалалардың рөлінің ерекшелігімен анықталады: олар әлеуметтік-экономикалық мәселелердің шиеленісу аймағында орналасқан, сондай-ақ ел экономикасының дамуы үшін маңызды орын алады. Аталған мақаланың соңғы мақсаты – Қазақстандағы моноқалалардың даму басымдықтарын қалыптастыруда стратегиялық маркетингтік жоспарлаудың әдістемелік тәсілдерін әзірлеу және оны сынақтан өткізу болып табылады. Мысалыға зерттеудің әртүрлі кезеңдеріндегі моноқалалар мынандай мөлшерде ұсынылды: Қазақстанның 27, 20, 9 моноқаласы. Кәзіргі және алдағы уақыттағы аумақтық маркетингтің жекелеген салалары бойынша топтастырылған қолжетімді статистикалық әлеуметтік-экономикалық көрсеткіштер негізінде 9 моноқаланы дамытудың басымдықтары анықталды. Зерттеудің міндеттері болып: моноқалаларының даму басымдықтарын қалыптастыруда стратегиялық маркетингтік жоспарлауды жетілдірудің әдістемелік тәсілдерін әзірлеу, моноқалалардың дамуындағы артықшылықтары мен кемшіліктерін анықтау, типологиясын жүргізу, жасанды интеллект технологиясының негізінде моноқалалардың әлеуметтік-экономикалық дамуының имитациялық моделінің құралдарын әзірлеу, Қазақстанның

гиялық даму басымдықтарын анықтау. Мәліметтерді жинау, өңдеу және талдаудың әдістемесі ретінде контент, салыстырмалы, факторлық, кластерлік талдау, типология, жасанды интеллектіні құру моделі (мұғаліммен оқыту, қателерді түзеу, BFGS – оңтайландыру) әдістемесі қолданылды. Мәліметтерді өңдеу, талдау, болжау үшін STATICTICA бағдарламалық кешенінің 13 нұсқасы пайдаланылды. Зерртеу нәтижелері – стратегиялық маркетингтік жоспарлаудың әзірленген құралдарын Қазақстан Республикасының моноқалаларын дамытудың ғылыми негізделген даму басымдықтарын қалыптастыру мақсаттары үшін пайдалану орынды екенін көрсетті.

Түйін сөздер: моноқала, маркетингтік стартегиялық жоспарлау, типология, даму басымдықтары, факторлық талдау, кластерлік талдау, имитациялық моделдеу.

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Совершенствование стратегического маркетингового планирования в формировании приоритетов развития моногородов Республики Казахстан

Актуальность исследования определяется особой ролью моногородов, являющихся объектом пристального внимания со стороны государства: они находятся в зоне обостряющихся социально-экономических проблем и в то же время играют важную роль в экономике страны. Целевое назначение настоящей статьи – разработка и апробация методического подхода к стратегическому маркетинговому планированию в формировании приоритетов развития моногородов Казахстана. В качестве примера были представлены моногорода в разные периоды исследования в следующем количестве: 27, 20, 9 моногородов Казахстана. В текущем и будущем периоде определены приоритеты развития 9 моногородов на основе доступных статистических социально-экономических показателей, сгруппированных по отдельным сферам территориального маркетинга. Задачами исследования явились: разработка методического подхода к стратегическому маркетинговому планированию в формировании приоритетов развития моногородов Казахстана, проведение типологизации и определение преимуществ и недостатков развития моногородов, разработка инструментария имитационного моделирования социально-экономического развития в моногородах на базе технологии искусственного интеллекта, определение стратегических приоритетов развития моногородов Казахстана. В качестве методов сбора, обработки и анализа данных были использованы контент, сравнительный, факторный, кластерный анализ, типологизация, методы построения моделей искусственного интеллекта (обучение с учителем; коррекция ошибок; BFGS-оптимизация). Для обработки, анализа данных, прогнозирования использовался программный комплекс STATISTICA версии 13. Результаты анализа показывают, что разработанный инструментарий стратегического маркетингового планирования целесообразно использовать для формирования научно обоснованных приоритетов развития моногородов Казахстана. Проведенное исследование полезно для органов государственной власти с целью разработки стратегий социально-экономического развития моногородов.

Ключевые слова: моногород, маркетинговое стратегическое планирование, типологизация, приоритеты развития, факторный анализ, кластерный анализ, имитационное моделирование.

Introduction

The integrated development of various urban functions is essential for sustaining cities. This is important for any kind of city, including monotowns. The latter, which arose as a reaction to the demand for production and social progress, may eventually fall into a depressed state without any supportive conditions or flexible strategic and tactical decisions. Many examples prove this. In Australia, their history demonstrates that the peripheral monotowns act as outposts, developing around a homogeneous, mono-industrial base and depending heavily on external investments (Roger, 2008). Typically, changes in the viability of the core industry directly affect many aspects of urban life (Halseth, 2000). Other monotowns worldwide are similarly affected, often existing in critical conditions (Kirsten, 2016).

Kazakhstani authors also note the transformation of monotowns into high-risk areas and the challenges of urban sustainable development (Borbasova et al., 2021; Maimuranova et al., 2022). It's known that if these problems remain unresolved, they can

accumulate and grow both quantitively, eventually turning into a cycle of unsolved problems.

In this context, there is an urgent need to define strategic development priorities for monotowns in Kazakhstan. These priorities should align with a model of sustainable urban development, and this model must be dynamic, as cities must evolve; otherwise, their condition will deteriorate, leading in some cases to collapse or transition into other forms of territorial entities. Currently, there are 20 monotowns in Kazakhstan according to the order of the Minister of National Economy (Kuantyrov, 2023). Previously, the list included 27 towns, but some have revitalized through economic transformations, such as Saran and Tekeli, while others lost their status (Rakhimbai, 2024). That's why this updated 20 monotowns' list is now the subject of study in many scientific works.

The aim of this study is to develop and test a methodological approach to strategic marketing planning for forming development priorities for monotowns in Kazakhstan.

The research object is the system of strategic marketing planning in establishing development priorities for varying numbers of territorial entities in Kazakhstan: from the existing 27 to the current 20 with complete statistical data in the current period for 9 monotowns. The subject of the study encompasses methods, tools, and indicators of strategic marketing planning in shaping development priorities for monotowns. To achieve the research goal, the following hypothesis was formulated: employing a methodological approach to strategic marketing planning for setting development priorities of monotowns, based on territorial marketing and artificial intelligence methods, will clarify the values of target indicators for their development and yield scientifically grounded priorities for growth.

Literature review

In the scientific literature, the issue of strategic planning for cities, from large to small, has been a field of research for scholars from various countries over different periods.

Many studies highlight that urban management in monotowns should be strategic and systematic (Caiuz, 2019) to prevent the rapid decline of these territories' economies over the long term (Halseth, 2000). Regarding the application of various structural blocks of strategic planning to analyze the development of monotowns, some authors argue for including analysis of external and internal development strategies, strategic goals and priorities,

key scenarios for socio-economic development, and mechanisms for implementing decisions (Sharnin, 2014). Strategies for the development of monotowns in the international context include protection, restoration, enhancement, and preservation of territories (Santi, 2019). It is also noted that there is a lack of research on the dynamics of shrinking cities as places where innovative activity can be maximized rather than hindered by changing environmental conditions (Cristina Martines-Fernandez, 2007).

In foreign practice, when establishing development priorities, cases concerning small cities are currently examined as effective examples for addressing problems and formulating differentiated strategies. Chinese authors' research suggests that transformational development in small cities could present new opportunities, supported by a scientific method: investigate characteristics – assess characteristics – develop characteristics for sustainable development (Xuegin et al., 2019). In Portugal, a sustainable urban development strategy was adopted prior to 2020, including special programs for restoration, resettlement of populations, combating desertification, and reducing urban waste (Make Cities and Human Settlements Inclusive, Safe, Resilient, and Sustainable, 2017). Strategic planning has been implemented for medium-sized cities outside Lisbon and Porto, with populations over 50,000, resulting in the creation of "urban management" entities (Jose, 2018).

The literature review reveals strategic priorities for monotown development, including their integration into urban agglomeration centers (Ivanova, 2012); transitioning from "crisis" and "risk" territories to "development" areas, reconstruction by city-forming enterprises (Stuvoy, 2022); developing a national monotown restructuring program (Kutergina, 2015; Rotenberg, 2014: 54); diversifying the economy through enhanced economic cooperation with major cities and rural areas, within both traditional (industrial) and innovative sectors (Kozhevnikov, 2023); and developing modern mechanisms for the digitalization of urban socioeconomic systems (Kunanbaeva et al., 2020).

To enhance strategic planning in territorial policy its necessary to review methodologies employed to determine the development priorities of monotowns. The most common methods for analyzing regional development include economic-mathematical modeling using regression, cluster analysis, linear programming, and hierarchy analysis (Kutergina, 2015); Monte Carlo methods (Sharnin, 2014). Other authors propose using cluster analysis to categorize monotowns into groups, describing a con-

ceptual model based on the principal-agent interaction (Shastitko, 2016) and multivariate classification models, discriminant analysis (Stimson et al., 2001).

Based on the conducted literature analysis, this research will focus on assessing the socio-economic situation of monotowns through a combination of analytical methods and strategic planning tools.

Methodology

This research is based on official data and works in strategic planning (Kulay, 2022; Borbasova et al., 2021; Kunanbaeva et al., 2020; Kutergina et al., 2015; Rotenberg, 2014; Pattanayak, 2019; Bheemanna, 2023; Bower, 2007).

The developed methodological approach is based on comparative, factor, cluster analysis, the typology of monotowns, and the construction of artificial intelligence models, specifically adaptive neural networks. Concerning the latter, it is noteworthy that during a recent meeting of the National Council on Science and Technology, the President of Kazakhstan (Tokayev, 2024) emphasized the development of artificial intelligence in areas such as security, medicine, banking, logistics, and education, highlighting a need for its active application in other sectors. This article attempts to adapt these methods for creating a simulation modeling toolkit for socio-economic development in monotowns, aiming to establish target indicators that can also effectively determine their strategic development priorities in the future. Within the study's neural network construction, a paradigm was chosen: supervised learning for the neural network; error-correction as the learning rule; a multilayer neural network architecture; and the BFGS optimization algorithm (Pattanayak, 2019:35).

To create the information base, typology of monotowns by overall socio-economic development level, neural network models, and forecasts based on those models, the STATISTICA software version 13 is used.

The indicators for data collection and analysis comprise available data on socio-economic situation of 27, 20, and 9 monotowns in Kazakhstan across different periods (Statistical Yearbook of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, 2013-2022). These indicators can be attributed to specific areas of territorial marketing.

Demographic, industrial, economic, and social aspects of a monotown, in the symbiosis of their development, can be considered as the main directions of territorial (urban) marketing. Individually or collectively, these can serve as key criteria to assess the level of activity for each indicator, which may provide citizens with a sense of satisfaction with their place of residence and their life, in the context of the interrelation between its level and quality (TM1, TM3, TM4, TM5, TM6, TM8, TM9, TM10, TM12); the development of industrial activity – growth potential or decline in the availability of necessary resources, productive activity, sectoral specialization (TM2), uninterrupted operation of industrial enterprises (TM5); the attractiveness of the territory in terms of employment (TM3, TM12); corporate social responsibility in creating infrastructure for environmental protection and the functioning of industrial infrastructure in the urban landscape (TM4); the volume of residential construction and infrastructure (TM6); the investment climate for renewing fixed assets to develop production potential (TM7); the well-being of the population in terms of access to medical and educational services and infrastructure expansion in these areas (TM8, TM9); the availability of skilled labor in employment sectors (TM10); and innovative activity and competitiveness (TM11) (Figure 1).

It is important to highlight that the indicators mentioned in Figure 1, while serving as indicators of the socio-economic development of monotowns, still have an indirect manifestation in the context of territorial marketing.

Results and discussion

Methodological approach to strategic marketing planning in the formation of development priorities for monotowns

In this study, the authors have developed a methodological approach to strategic marketing planning for the formation of development priorities for monotowns in Kazakhstan. A distinctive feature of this approach is the use of territorial marketing indicators and artificial intelligence.

Let's examine the step-by-step process of strategic marketing planning in more detail (Figure 2). Note that the first four blocks focus on analyzing the current state of monotowns, while the following ones determine strategic target indicators and development priorities, considering the socio-economic indicators in different areas of territorial marketing for both the present and future periods.
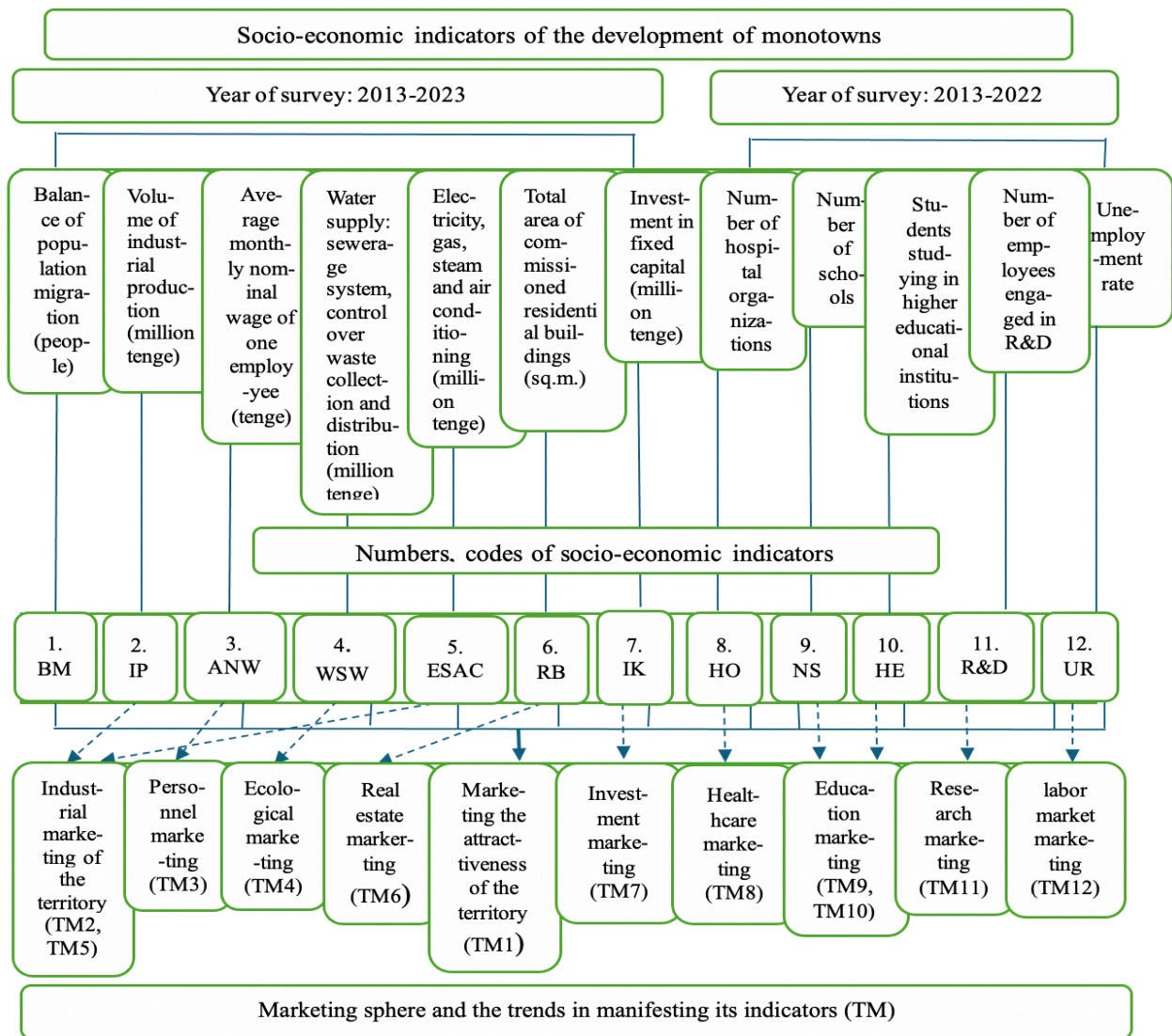
Figure 1 – Socio-economic indicators of monotowns development across various spheres of territorial marketing
Note – compiled by the authors

The first stage focuses on collecting statistical data on the indicators presented in Figure 1. The subsequent stages involve analytical procedures. In the second stage, the overall index of socio-economic development of the monotown is calculated by standardizing the data to bring them onto a comparable scale for further analysis.

It should be noted that the methodology of index formation through additive convolution has proven its applicability in many studies, particularly in (Abramov et al., 2019: 69).

Based on this methodology, a formula for calculating the general socio-economic development index of monotowns was developed in this study.

$$I = \sum P \times V \qquad (1)$$

where:

I – overall index of socio-economic development;

P – standardized value of the socio-economic indicator in various spheres of territorial marketing;

V – weighting coefficient.

The higher the value of I, the greater the overall level of socio-economic development of the monotown.

This index can be identified as an integral level of attractiveness, indicating economic stability, investment and innovation appeal, satisfaction with socio-economic conditions, and quality of life.
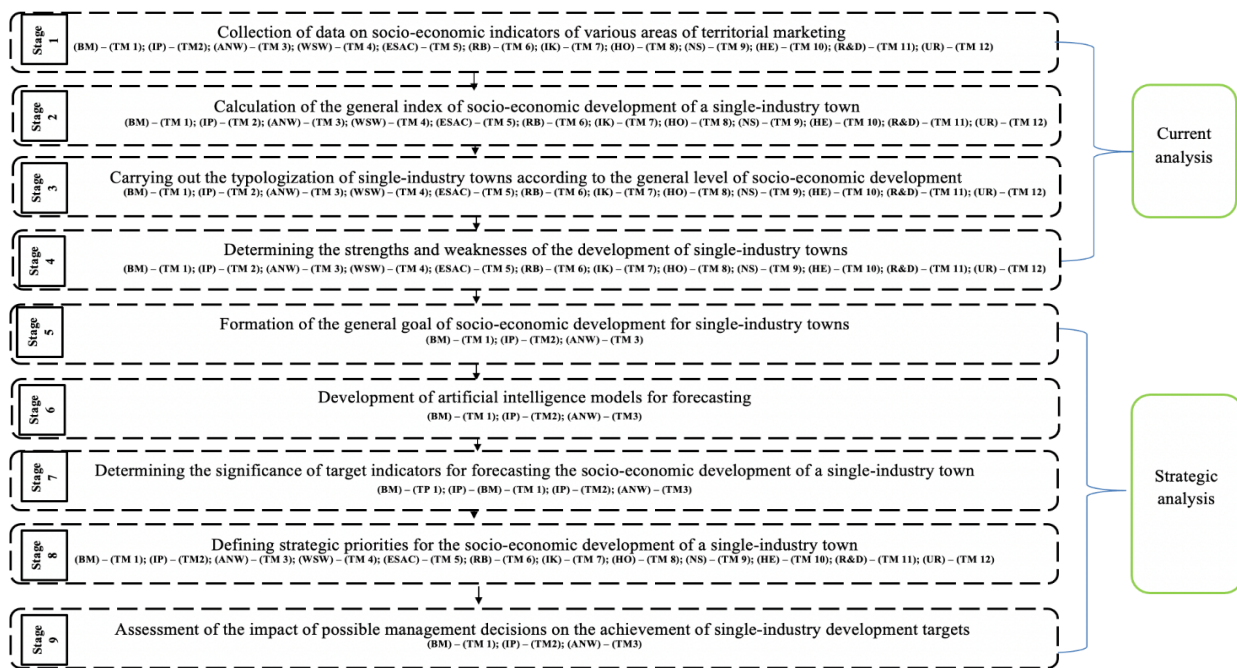
Figure 2 – Methodological approach to strategic marketing planning in the formation
of development priorities for monotowns of Kazakhstan
Note – Compiled by the authors based on (Kulay, 2022; Pattanayak, 2019; Bheemanna, 2023; Bower, 2007)

When analyzing the composition of the general socio-economic development index for monotowns, it is necessary to assess factor loadings to determine which indicators have the dominant impact on their position.

The third stage plays a key role in the strategic marketing planning process and aims to typologize monotowns based on I values. For this, cluster analysis using tree clustering and "k-means" is recommended (Kulay, 2022: 110). Based on the analysis results, towns with high, above-average, average, below-average, and low levels of socio-economic development can be identified.

The fourth stage is aimed at identifying the key strengths and weaknesses of monotowns. The results obtained at this stage are essential for further strategic planning, particularly in forming scientifically justified priorities for the development of these towns.

The fifth stage sets the overall socio-economic development goal for monotowns, considering their strengths, specific characteristics, and weaknesses that need to be addressed.

The next, sixth stage is focused on developing AI models for predicting indicators that have the dominant impact on I index in monotowns. These models are needed to determine the values of indicators that characterize the achievement of the general

development goal and to evaluate the effectiveness of management decisions.

Then, based on the AI models created earlier, target indicator values for monotowns are formed.

The final stages are focused on identifying scientifically grounded future development directions for specific monotowns (those that will have the greatest impact on mitigating key weaknesses) and evaluating the potential impact of management decisions on achieving target development indicators using the AI model.

Testing the methodological approach to strategic marketing planning in the formation of development priorities for monotowns of the Republic of Kazakhstan

The analysis of the stages of marketing strategic planning in determining development priorities for monotowns in Kazakhstan revealed the following results

Results of the current analysis in marketing planning

Results of the first stage. Basic statistical socio-economic indicators for the development of monotowns in Kazakhstan were collected for several years. The analysis for 2022 and 2023 assesses the current socio-economic development situation. These years offer statistical data closest to the study period.

Some limitations in gathering full information affected the number of towns studied: in 2022, data were collected and analyzed for all 27 monotowns. In 2023, the Ministry of National Economy of the Republic of Kazakhstan issued an order approving a list of 20 monotowns. The authors based the assessment on data from 20 monotowns in 2022, conducting additional analysis. For 2023, full statistical data were available for only 9 monotowns at the time of the study. Thus, strategic development priorities were identified only for them. Factor analysis used 2022 data for 27 and 20 monotowns, covering all indicators presented in Figure 1. Due to limited 2023 data for 9 monotowns, calculations were made for the following indicator numbers: 1, 2, 3, 4, 5, 6, 7 (Figure 1).

Results of the Second Stage. The calculated overall index of socio-economic development of monotowns is presented in Table 1 and forms the basis for further analysis. It is noted that Tables 1-7 assessments were based on statistical data (Statistical Bulletin of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, 2022-2023) and the results of various types of analysis, which will be indicated in the notes to these tables.

Table 1 – Results of the overall socio-economic development index (I) calculation for monotowns

For 27 monotowns in 2022		For 20 monotowns in 2022		For 9 monotowns in 2023	
Town name	(I) index	Town name	(I) index	Town name	(I) index
Rudny	306,1	Rudny	31,72	Aksu	0,1488
Aksu	201,2	Aksu	18,76	Zhanaozen	0,0510
Zhezkazgan	179,4	Temirtau	6,25	Temirtau	0,0335
Saran	153,8	Ridder	5,69	Balkhash	0,0318
Temirtau	76,3	Zhanaozen	4,85	Khromtau	0,02
Ridder	71,1	Balkhash	4,32	Shakhtinsk	0,0029
Balkhash	51,1	Ekibastuz	3,39	Stepnogorsk	0,0006
Zhanaozen	46,7	Kulsary	2,33	Abay	0,0004
Ekibastuz	45,1	Aksai	1,78	Kurchatov	0,0000005
Kulsary	27,7	Satpayev	1,35		
Aksai	22,9	Khromtau	1,15		
Altai	9,8	Shakhtinsk	0,7		
Khromtau	1,9	Stepnogorsk	0,5		
Zhitikara	1,4	Zhitikara	0,42		
Lisakovsk	1,35	Lisakovsk	0,35		
Stepnogorsk	1,3	Abay	0,31		
Shakhtinsk	1,2	Kentau	0,23		
Kentau	1,15	Karazhal	0,15		
Abay	0,8	Kurchatov	0,07		
Karazhal	0,1				
Zhanatas	0,05				
Tekeli	0,030				
Arkalyk	0,019				
Serebryansk	0,015				
Kurchatov	0,012				
Karatau	0,006				
Note – Compiled by the authors based on formula (1)					

The overall socio-economic development index values vary across different monotowns: the highest is in Rudny (306.1) among 27 monotowns, its position (31.72) also unchanged among 20 monotowns, and among 9 monotowns, the highest is in Aksu (0.1488), indicating their attractiveness in terms of economic, social, and investment development. Factor load analysis identified significant factors for the overall socio-economic development index (Table 2).

Table 2 – Results of factor load calculations for monotowns in Kazakhstan

Factors influencing, I – the overall level of socio-economic development	Factor load value (factor analysis for monotowns, data 2022-2023		
	for 27 monotowns in 2022	for 20 monotowns in 2022	for 9 monotowns in 2023
Migration balance	0,93	0,91	0,89
Volume of industrial production (goods, services)	0,81	0,83	0,85
Average monthly nominal wage per employee	0,73	0,76	0,77
Investment in fixed capital	0,65	0,67	0,63
Unemployment rate	-0,55	-0,52	–
Students in higher education institutions	0,51	0,49	–
Number of R&D employees	0,43	0,39	–
Water supply: sewerage system, waste collection and distribution control	0,39	0,41	0,43
Electricity, gas, steam, and air conditioning supply	0,33	0,32	0,37
Number of schools	0,22	0,19	–
Number of hospital organizations	0,11	0,09	–
Total area of commissioned residential buildings	0,07	0,03	0,04
Note – compiled by the authors based on factor analysis results			

The results show that the most significant impact on analyzing index *I* is exerted by migration balance, industrial production volume (goods, services), and the average nominal monthly wage of one worker (since the factor loading (Pearson correlation coefficient) between the factor and socio-economic indicator was greater than 0.7, indicating a strong dependence).

An increase in positive migration balance, high industrial production volumes, and nominal wages will indicate greater stability, higher industrial specialization activity, production growth rates, resource-economic potential development, and citizen satisfaction with socio-economic conditions. These factors are crucial for the development of monotowns and should be considered as key targets in socio-economic development strategies.

Results of the Third Stage. The analysis revealed that based on the overall socio-economic develop-ment index, monotowns can be categorized into various development levels, ranging from high to low. These conclusions were drawn from the cluster analysis conducted using the hierarchical clustering method (Table 3).

The results suggest that dividing the towns into five clusters is appropriate (monotowns with high socio-economic development levels (key towns); above-average socio-economic development; average socio-economic development; below-average socio-economic development; low socio-economic development), as the p-value is statistically significant for five or more clusters (indicating a confidence level of over 95%).

Key monotowns are investment-attractive, as they exhibit all the territorial marketing trends listed in Figure 1: high industrial production levels, better access to social, engineering, and transport infrastructure.

Table 3 – Hierarchical Clustering Results for Monotowns in the Republic of Kazakhstan

Number of clusters	p-value (statistical significance level)		
	Results of cluster analysis using the hierarchical clustering method for monotowns based on data for 2022-2023		
	or 27 monotowns (2022 data)	for 20 monotowns (2022 data)	for 9 monotowns (2023 data)
1	1,00	1,00	1,00
2	0,51	0,47	0,27
3	0,31	0,22	0,12
4	0,15	0,09	0,07
5 or more	<0.05	<0.05	<0.05
Note – Compiled by the authors based on hierarchical clustering analysis results			

Thus, the optimal number of clusters by type of monotowns has been determined. The data are significant, indicating a qualitative division of clusters. This information allowed the identification of types of monotowns by their overall level of socio-economic development, which are illustrated in Figures 3, 4, and 5. These towns are located within different clusters with their centers marked.

We see that centers can differ depending on I values.

In Figure 3, it is clear that the *I* value of the towns of Rudny, Temirtau, Ridder, Ekibastuz, Kulsary, Satpayev, Aksay, Zhitikara, Lisakovsk, Stepnogorsk, Shakhtinsk, Kentau, Tekeli, and Arkalyk is above the average value (cluster center) for their respective group (type of monotown).

In Figure 4, the I value of Rudny, Temirtau, Ridder, Ekibastuz, Kulsary, Shakhtinsk, Stepno-

gorsk, and Zhitikara is above the average value (cluster center) for their respective group (type of monotown).

In Figure 5, the I value of Zhanaozen and Shakhtinsk is above the average value (cluster center) for their respective group (type of monotown).

The data from Figures 3, 4, and 5 indicate that the designated monotowns exhibit stronger trends in territorial marketing within their respective groups (types of monotowns). Additionally, the results reveal recurring monotowns in various clusters: in the 1st cluster – Aksu; in the 2nd – Temirtau, Balkhash, Zhanaozen; in the 3rd – Khromtau; in the 4th – Shakhtinsk, Stepnogorsk, Abai; and in the 5th – Kurchatov. This suggests that these monotowns have remained in the same cluster over recent years and are beginning to form the core of stable segments.
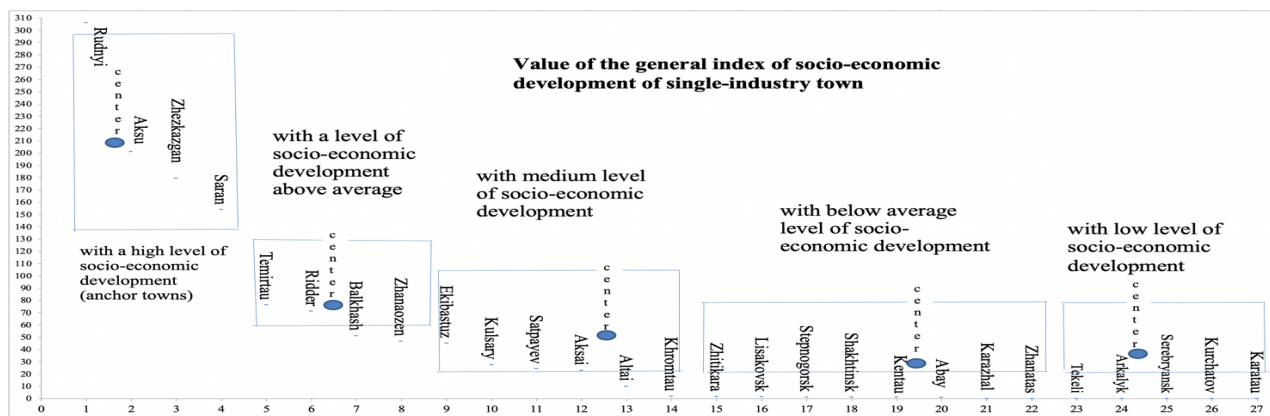

Figure 3 – Types of monotowns by overall level of socio-economic development among 27 monotowns in 2022
Note – compiled by the authors based on cluster analysis using the "k-means" method

Figure 4 – Types of monotowns by overall level of socio-economic development among 20 monotowns in 2022
Note – compiled by the authors based on cluster analysis using the "k-means" method

Figure 5 – Types of Monotowns by Overall Level of Socio-Economic Development Among 9 monotowns in 2023
Note – compiled by the authors based on cluster analysis using the "k-means" method

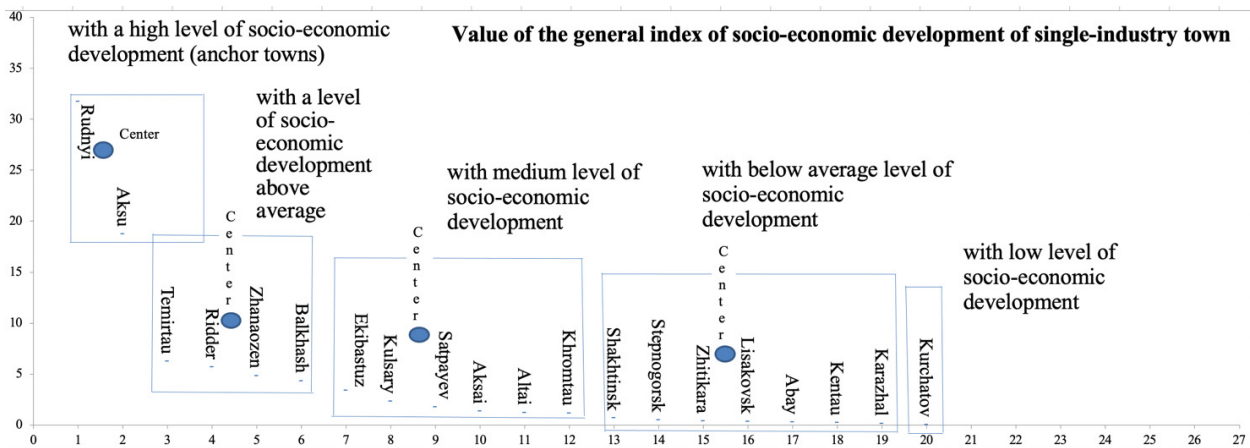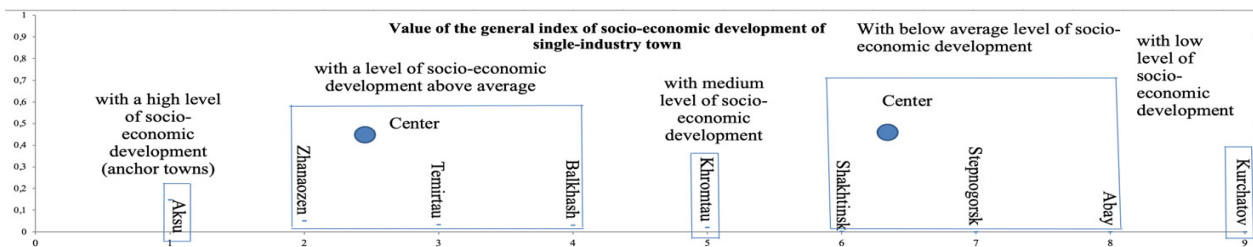Kurchatov's inclusion in the fifth cluster can be explained by its low values across most indicators of overall socio-economic development compared to other monotowns (Table 1). The findings from the study are supported by relative verification: Kurchatov is currently a small town located between Semipalatinsk and Pavlodar in Eastern Kazakhstan. It is characterized by inadequate engineering and road infrastructure, low levels of investment in fixed assets (20 times lower compared to Aksu), a shortage of personnel in socially significant specialties, poor technical equipment of enterprises, etc.

The results of the fourth stage are presented in the identification of the strengths and weaknesses in the development of 9 monotowns (Figure 6).

These are characteristic of monotowns such as Aksu, Balkhash, Zhanaozen, Khromtau, and others. The main disadvantages for these monotowns during the same period are: negative migration balance; high wear of engineering networks; environmental issues; reduction in industrial production (goods and services); decrease in the total area of newly constructed residential buildings; and dependence on

city-forming enterprises. These issues are prevalent in monotowns such as Kurchatov, Shakhtinsk, Abai, Stepnogorsk, and others. Other points outlined in Figure 6 represent specific development characteristics of individual monotowns.

The analysis conducted revealed improvements in the following indicators for the cities studied from 2021 to 2023: average nominal monthly wage, investments in fixed capital, electricity and gas supply, and economic diversification at various stages.

The current analysis presented (results of stages 1-4) in marketing planning enables further strategic assessment and the prioritization of single-industry town development.

Results of strategic analysis in marketing planning

The results of the fifth stage are presented by defining the general objectives for socio-economic development across the 9 monotowns:

- Aksu: maintain leadership in socio-economic development through the priority development of non-resource sectors, accelerated industrial growth, and agro-industrial complex as drivers for improving living standards.
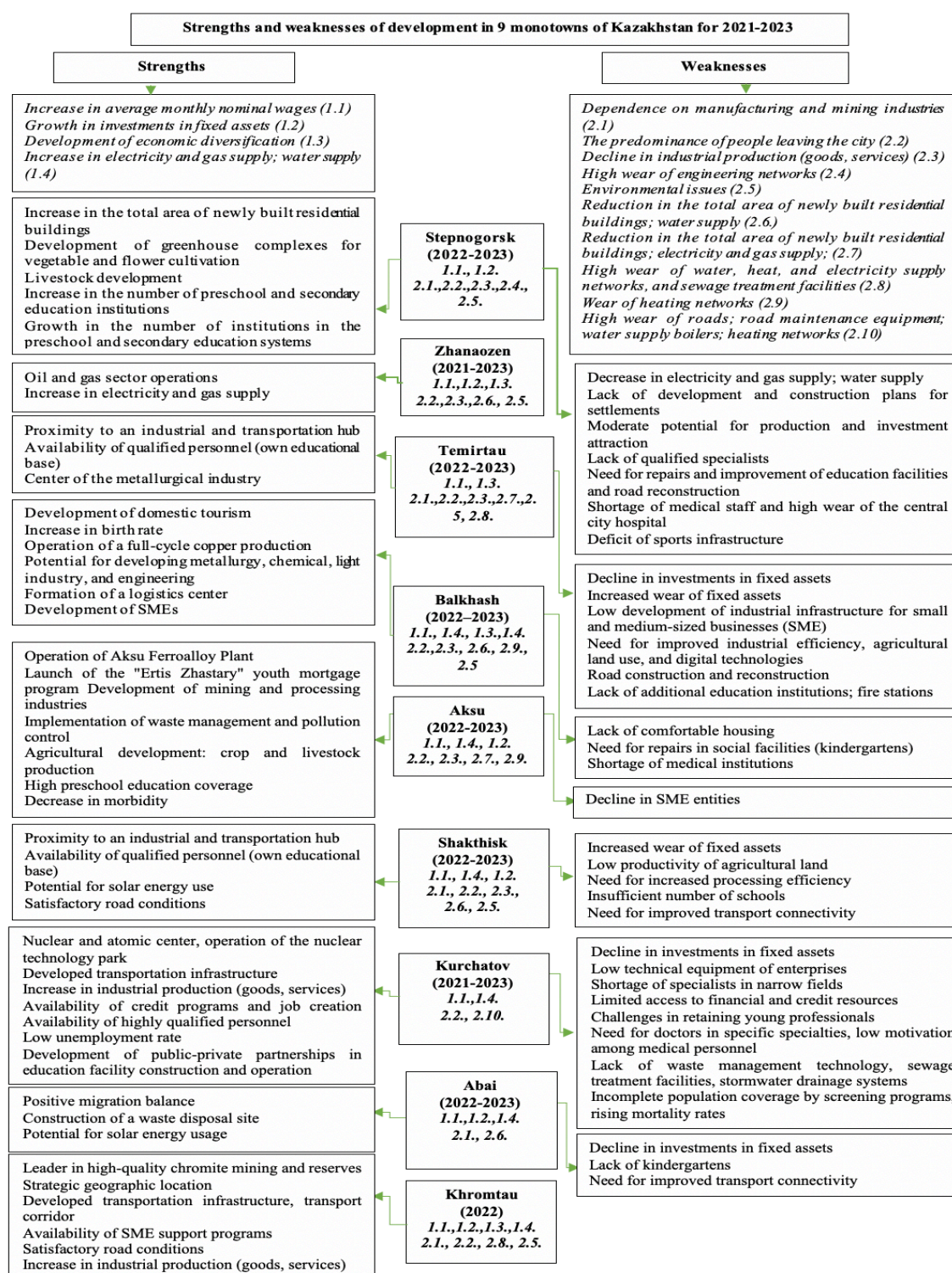
Strengths and weaknesses of development in 9 monotowns of Kazakhstan for 2021-2023

Strengths

Increase in average monthly nominal wages (1.1)
Growth in investments in fixed assets (1.2)
Development of economic diversification (1.3)
Increase in electricity and gas supply; water supply (1.4)

Increase in the total area of newly built residential buildings
Development of greenhouse complexes for vegetable and flower cultivation
Livestock development
Increase in the number of preschool and secondary education institutions
Growth in the number of institutions in the preschool and secondary education systems

Oil and gas sector operations
Increase in electricity and gas supply

Proximity to an industrial and transportation hub
Availability of qualified personnel (own educational base)
Center of the metallurgical industry

Development of domestic tourism
Increase in birth rate
Operation of a full-cycle copper production
Potential for developing metallurgy, chemical, light industry, and engineering
Formation of a logistics center
Development of SMEs

Operation of Aksu Ferroalloy Plant
Launch of the "Ertis Zhastary" youth mortgage program Development of mining and processing industries
Implementation of waste management and pollution control
Agricultural development: crop and livestock production
High preschool education coverage
Decrease in morbidity

Proximity to an industrial and transportation hub
Availability of qualified personnel (own educational base)
Potential for solar energy use
Satisfactory road conditions

Nuclear and atomic center, operation of the nuclear technology park
Developed transportation infrastructure
Increase in industrial production (goods, services)
Availability of credit programs and job creation
Availability of highly qualified personnel
Low unemployment rate
Development of public-private partnerships in education facility construction and operation

Positive migration balance
Construction of a waste disposal site
Potential for solar energy usage

Leader in high-quality chromite mining and reserves
Strategic geographic location
Developed transportation infrastructure, transport corridor
Availability of SME support programs
Satisfactory road conditions
Increase in industrial production (goods, services)

Stepnogorsk (2022-2023)
1.1., 1.2.
2.1.,2.2.,2.3.,2.4., 2.5.

Zhanaozen (2021-2023)
1.1.,1.2.,1.3.
2.2.,2.3.,2.6., 2.5.

Temirtau (2022-2023)
1.1., 1.3.
2.1.,2.2.,2.3.,2.7.,2.5, 2.8.

Balkhash (2022–2023)
1.1., 1.4., 1.3.,1.4.
2.2.,2.3., 2.6., 2.9., 2.5

Aksu (2022-2023)
1.1., 1.4., 1.2.
2.2., 2.3., 2.7., 2.9.

Shakthisk (2022-2023)
1.1., 1.4., 1.2.
2.1., 2.2., 2.3., 2.6., 2.5.

Kurchatov (2021-2023)
1.1.,1.4.
2.2., 2.10.

Abai (2022-2023)
1.1.,1.2.,1.4.
2.1., 2.6.

Khromtau (2022)
1.1.,1.2.,1.3.,1.4.
2.1., 2.2., 2.8., 2.5.

Weaknesses

Dependence on manufacturing and mining industries (2.1)
The predominance of people leaving the city (2.2)
Decline in industrial production (goods, services) (2.3)
High wear of engineering networks (2.4)
Environmental issues (2.5)
Reduction in the total area of newly built residential buildings; water supply (2.6.)
Reduction in the total area of newly built residential buildings; electricity and gas supply; (2.7)
High wear of water, heat, and electricity supply networks, and sewage treatment facilities (2.8)
Wear of heating networks (2.9)
High wear of roads; road maintenance equipment; water supply boilers; heating networks (2.10)

Decrease in electricity and gas supply; water supply
Lack of development and construction plans for settlements
Moderate potential for production and investment attraction
Lack of qualified specialists
Need for repairs and improvement of education facilities and road reconstruction
Shortage of medical staff and high wear of the central city hospital
Deficit of sports infrastructure

Decline in investments in fixed assets
Increased wear of fixed assets
Low development of industrial infrastructure for small and medium-sized businesses (SME)
Need for improved industrial efficiency, agricultural land use, and digital technologies
Road construction and reconstruction
Lack of additional education institutions; fire stations

Lack of comfortable housing
Need for repairs in social facilities (kindergartens)
Shortage of medical institutions

Decline in SME entities

Increased wear of fixed assets
Low productivity of agricultural land
Need for increased processing efficiency
Insufficient number of schools
Need for improved transport connectivity

Decline in investments in fixed assets
Low technical equipment of enterprises
Shortage of specialists in narrow fields
Limited access to financial and credit resources
Challenges in retaining young professionals
Need for doctors in specific specialties, low motivation among medical personnel
Lack of waste management technology, sewage treatment facilities, stormwater drainage systems
Incomplete population coverage by screening programs, rising mortality rates

Decline in investments in fixed assets
Lack of kindergartens
Need for improved transport connectivity

Figure 6 – Strengths and weaknesses of development in 9 monotowns of Kazakhstan for 2021-2023
Note – *Italics indicate advantages and disadvantages for all studied single-industry towns; ** advantages and disadvantages of individual polygenes are highlighted in a standard font; ***Compiled by the authors based on sources (Statistical Yearbook of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, 2022-2023; Approval of the Comprehensive Plan for Socio-Economic Development of Stepnogorsk, Akmolinsk Region for 2023–2027; Approval of the Comprehensive Plan for Socio-Economic Development of Balkhash, Karaganda Region for 2023–2027; Approval of the Comprehensive Plan for Development of the Karaganda Agglomeration for 2024-2028 (draft); Comprehensive Plan for Socio-Economic Development of Mangystau Region for 2021–2025; Socio-Economic Development Results of Aksu Region for the First Half of 2024; Development Program for Kurchatov City, East Kazakhstan Region for 2021-2025).

- Zhanaozen: stimulate further development of the oil and gas sector, diversify the economy, enhance energy efficiency, and create conditions for human capital development.

- Temirtau: promote accelerated industrial growth, economic diversification, and competitiveness through favorable conditions for investment and innovation.

- Balkhash: intensively develop industry, tourism, social, and logistical infrastructure while addressing environmental issues.

- Khromtau: reduce dependence on city-forming enterprises through economic diversification, modernization of the transport corridor, and increased innovation to enhance living standards.

- Shakhtinsk: achieve accelerated industrial growth considering the environmental situation to create favorable conditions for living and self-realization.

- Stepnogorsk: support the growth of economic diversification and innovation as a foundation for developing the social sector and human capital.

- Abai: achieve accelerated industrial and internal tourism growth as drivers of socio-economic development.

- Kurchatov: enhance the monotown's position through sustainable and dynamic development of the economy, social sector, infrastructure, and scientific potential.

Results of the sixth stage. Further analysis was conducted at the strategic evaluation level, based on the development of artificial intelligence models to forecast indicators that significantly impact the overall socio-economic development of monotowns. The AI models for predicting migration balance and related forecasts were developed in the study by Mishchenko I.V., Krayushkin M.G. (Mishchenko et al., 2024: 13) and are not discussed in this article.

The construction of AI models for forecasting industrial production (goods, services) by monotowns was based on this indicator and factors (Table 4) affecting it from 2013 to 2022.

Based on the correlation analysis, it has been determined that the most significant factors influencing the volume of industrial production (goods, services) are investments in fixed assets; water supply, sewage systems, and waste collection and distribution control; supply of electricity, gas, steam, hot water, and air conditioning; and wages (as the Pearson correlation coefficient values are above 0.7).

Table 4 – Correlation coefficients between industrial production volume (goods, services) and Factors Affecting it

Factor affecting industrial production volume (goods, services) in monotowns	Pearson Correlation Coefficient
Investments in fixed assets	0,91
Water supply; sewage system; waste collection and distribution control	0,79
Supply of electricity, gas, steam, hot water, and air conditioning	0,78
Average monthly nominal wage per worker	0,71
Number of employees engaged in R&D	0,15
Note – Compiled by the authors based on the results of the correlation analysis	

An increase in these indicators suggests a rise in the potential for updating fixed assets, attractiveness of the area for labor application, implementation of investment projects, creation of industrial infrastructure, and the standard of living for residents.

To identify trends in industrial production volume dynamics, an autocorrelation analysis was conducted, and cluster analysis was used to create representative groups using tree clustering and k-means (Table 5). The results indicated that it is advisable to construct forecasting models using data from 2017 to 2022, with three clusters, as these have statistically significant autocorrelation coefficients and cluster numbers (i.e., p-values below 0.05).

The models' error was less than 5 percent. According to Table 5, the production volume clusters are of high quality, as the distance from the cluster center is consistently less than 1. Otherwise, the accuracy of the target indicators used to model the socio-economic development of monotowns would significantly decrease. It is important to note that monotowns in Cluster 1, characterized by high production volumes, show the highest level of resource-economic potential and industrial specialization activity.

Monotowns in Cluster 2 exhibit a medium level of development in the mining industry, metal ores, and industrial zones.

Table 5 – Results of Absolute Verification of Neural Network Modeling and Cluster Determination for Modeling the Volume of Industrial Production (Goods, Services) in Monotowns for 2017-2022

Monotown	Distance from cluster center*	Deviation of actual data from model values (model error), %** (Results of absolute verification for 2022)
Cluster 1 (monotowns with high production volume)		
Temirtau	0,9006	2,3
Aksu	0,0922	2,5
Balkhash	0,5403	1,7
Rudny	0,6196	2,3
Ekibastuz	0,3867	2,1
Ridder	0,5756	4,7
Stepnogorsk	0,4453	4,4
Cluster 2 (monotowns with medium production volume)		
Zhitikara	0,5711	3,9
Lisakovsk	0,2375	2,9
Satpaev	0,7272	4,5
Aksai	0,4064	3,1
Kentau	0,2508	2,7
Karazhal	0,1678	4,2
Shakhtinsk	0,2815	1,3
Cluster 3 (monotowns with low production volume)		
Abai	0,4986	1,3
Zhanaozen	0,6628	1,2
Altai	0,3980	2,7
Kulsary	0,8046	1,7
Khromtau	0,7753	1,8
Kurchatov	0,3980	4,2
*Note – Compiled by the authors based on k-means clustering and neural network modeling results		

Monotowns in Cluster 3 show relatively low levels of resource-economic potential and development in the mining and oil-gas industries.

Further, as an example, Figure 7 presents a neural network model for forecasting production volume for Cluster 1, the most significant cluster.

The model's operation (Figure 7) can be described as follows. The main factors for evaluating the model are indicators 3, 4, 5, and 7 from Figure 1. The model multiplies the factor values by the neural network's weight coefficients for each connection (in this case, there are 84 weight coefficients). According to the absolute verification results of the built model (Table 5), this model is deemed suitable for forecasting as it is accurate. Similar models can be developed for Cluster 2 and Cluster 3 in terms of production volume.

Similarly, models were developed for forecasting the average monthly wage of a worker. Figure 8 presents the forecasting model graph for the first cluster (monotowns with high wage levels) among the three clusters (Cluster 2: monotowns with average wage levels; Cluster 3: monotowns with low wage levels).

The absolute verification of the model's performance shows that it is suitable for forecasting the average monthly nominal wage per worker due to its high accuracy. Similar models can be developed for Clusters 2 and 3 regarding wages.

Results of Final Stages (7, 8, 9). Based on the scientifically grounded analytical data from stages 1-6, key strategic priorities for the socio-economic development of monotowns can be identified, as well as the target values for these indicators (Table 6).
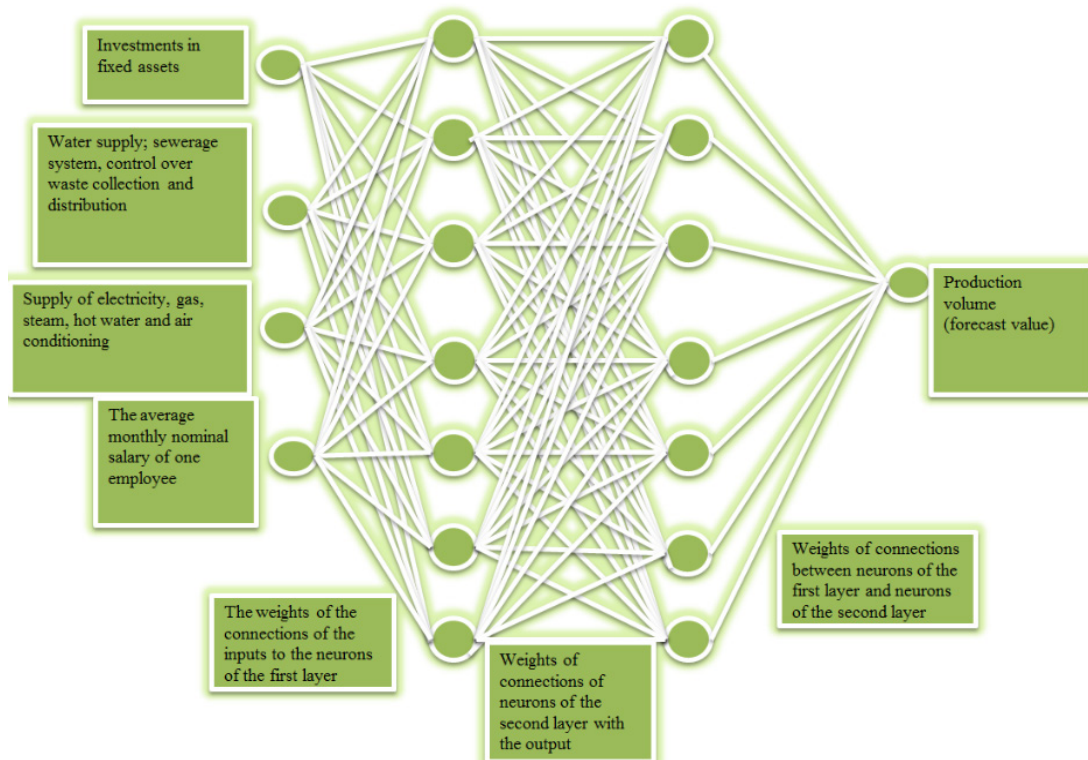
Figure 7 – Neural Network Graph for Forecasting Production Volume for Cluster 1
Note – Compiled by the authors based on neural network modeling results
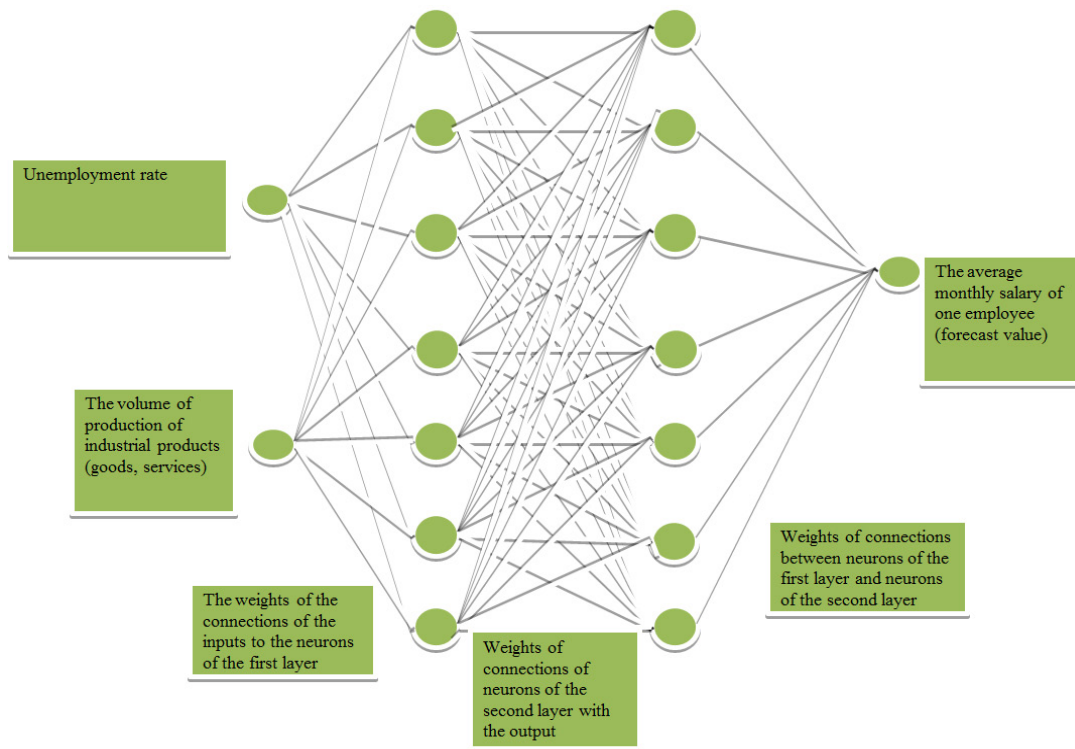
Figure 8 – Neural Network Graph for Forecasting Average Monthly Nominal Wage per Worker for Cluster 1
Note – Compiled by the authors based on neural network modeling results

Table 6 – Key strategic priorities for the socio-economic development of monotowns

Monotowns	Planned values for socio-economic development indicators	Key strategic priorities of monotown socio-economic development
Aksu	Industrial production volume growth by 1.6 times by 2035 compared to 2023; Nominal wage growth by 2.9 times by 2035 compared to 2023	1. Establishing an investment profile for the monotown 2. Developing a preferential credit mechanism, supporting technical and technological modernization of industry and agriculture, and their digital transformation 4. Creating technology parks 5. Promoting innovative activities 6. Grant support for agricultural cooperatives 7. Developing engineering infrastructure 8. Encouraging youth to work in the monotown
Zhanaozen	Industrial production volume growth by 1.4 times by 2035 compared to 2023; Nominal wage growth by 2.7 times by 2035 compared to 2023	1. Establishing an investment profile for the monotown 2. Creating cluster associations 3. Creating technology parks 4. Promoting the adoption of eco-friendly and energy-efficient technologies 5. Developing engineering infrastructure 6. Developing social infrastructure 7. Assisting with staffing (including for new investment projects) 8. Developing and implementing targeted workforce training schemes
Temirtau	Industrial production volume growth by 1.8 times by 2035 compared to 2023; Nominal wage growth by 3.1 times by 2035 compared to 2023	1. Establishing an investment profile for the monotown 2. Creating cluster associations 3. Supporting the creation of new industrial and agricultural capacities, especially eco-friendly and energy-efficient ones 4. Creating technology parks 5. Developing engineering and transport infrastructure 6. Developing social infrastructure 7. Encouraging youth to work in the monotown
Balkhash	Industrial production volume growth by 1.5 times by 2035 compared to 2023; Nominal wage growth by 2.5 times by 2035 compared to 2023	1. Creation of a monotown investment profile; 2. Promotion of industrial, agro-industrial, and tourism capacities; 3. Creation of cluster associations, technology parks; 4. Preferential lending; 5. Promoting innovative activities 6. Developing social, engineering, and transport infrastructure 7. Assisting with staffing (including for new investment projects)
Khromtau	Industrial production volume growth by 1.4 times by 2035 compared to 2023; Nominal wage growth by 2.9 times by 2035 compared to 2023	1. Establishing an investment profile for the monotown 2. Supporting the establishment of private enterprises 3. Preferential crediting 4. Developing engineering infrastructure 5. Encouraging youth to work in the monotown
Shakhtinsk	Industrial production volume growth by 1.4 times by 2035 compared to 2023; Nominal wage growth by 2.8 times by 2035 compared to 2023	1. Creation of a monotown investment profile; 2. Promotion of industrial and agro-industrial capacities (especially energy-efficient ones); 3. Creation of cluster associations, technology parks; 4. Preferential crediting 5. Stimulating entrepreneurial and community initiatives 6. Developing social, engineering, and transport infrastructure
Stepnogorsk	Industrial production volume growth by 1.4 times by 2035 compared to 2023; Nominal wage growth by 2.6 times by 2035 compared to 2023	1. Establishing an investment profile for the monotown 2. Creating cluster associations and technology parks 3. Supporting the creation of new industrial and agricultural capacities (especially eco-friendly and energy-efficient ones) 4. Supporting the establishment of private enterprises 5. Preferential crediting 6. Developing social, engineering, and transport infrastructure 7. Stimulating the creation of high-performance jobs 8. Assisting with staffing (including for new investment projects) 9. Developing targeted workforce training schemes 10. Supporting relocation for employment

Monotowns	Planned values for socio-economic development indicators	Key strategic priorities of monotown socio-economic development
Abai	Industrial production volume growth by 1.4 times by 2035 compared to 2023; Nominal wage growth by 2.4 times by 2035 compared to 2023	1. Establishing an investment profile for the monotown 2. Creating special economic zones 3. Creating technology parks 4. Developing engineering infrastructure 5. Developing social and transport infrastructure 6. Stimulating deep processing
Kurchatov	Industrial production volume growth by 1.2 times by 2035 compared to 2023; Nominal wage growth by 2.3 times by 2035 compared to 2023	1. Establishing an investment profile for the monotown 2. Creating cluster associations (including organizations engaged in R&D) 3. Creating technology parks 4. Creating a special economic zone for industrial production 5. Preferential crediting 6. Developing social and engineering infrastructure 7. Developing transport infrastructure 8. Stimulating wage increases (including through direct subsidies for investment projects) 9. Developing and implementing targeted workforce training schemes
Note – Compiled by the authors based on developed AI (neural networking) simulation models and Figure 6		

Based on the analysis of Table 6, the most significant strategic priorities include: *enhancing the image of territories by creating an investment profile for each monotown*, highlighting competitive advantages, major enterprises, and providing business recommendations to investors (implementation tool: development of an investment platform with profiles of relevant monotowns, and an audit project for investors, including existing support measures for project implementation). This organizational measure is expected to increase investor interest in monotown development.

To strengthen cooperation between research organizations and real sector enterprises, it is essential *to establish cluster associations and technology parks*. This will lead to a growth in innovative and competitive products in both domestic and international markets.

It is crucial *to develop social, engineering, and transportation infrastructure across all monotowns, particularly in areas where investment projects are being or will be implemented*. Infrastructure budget loans can be used to support this initiative.

Preferential lending is among the priority areas for developing Kazakhstan's monotowns as it supports the development of SMEs and technical upgrades.

Conclusion

The analysis has led to the development of a methodological approach to strategic marketing planning for setting priorities in the development of monotowns in Kazakhstan, distinguished by the use of territorial marketing and artificial intelligence tools. The strategic marketing planning process is outlined in stages, integrating various indicators from territorial marketing. The first four stages focus on analyzing the current state of monotowns, while the subsequent stages are for defining strategic targets and socio-economic development priorities.

Testing of the developed methodological approach reveals that the most significant impact on the overall socio-economic development of monotowns comes from migration balance, industrial production volume (goods and services), and the average monthly nominal wage per employee. The application of the developed methodological approach established that the most significant influence on the overall socio-economic development of single-industry towns is exerted by migration balance, industrial production volume (goods, services), and average nominal monthly wage.

The typology identified five types of monotowns: those with high socio-economic development (key), above-average development, average development, below-average development, and low development.

The study identified both advantages and disadvantages in the development of monotowns. Key disadvantages from 2021 to 2023 include negative migration balance, high wear of engineering networks, environmental issues, reduced industrial production volume, decreased residential building area, and dependence on key enterprises.

A simulation modeling tool based on artificial intelligence technology was developed to determine

target values for socio-economic development indicators. The models built were highly accurate (in some cases reaching almost 99 percent).

Key strategic priorities for the socio-economic development of monotowns were determined based on practical implementation of the developed approach. Significant priorities include territorial image marketing through investment profiles, creating cluster associations, technology parks, and developing social, engineering, and transport infrastructure, especially where investment projects are or will be implemented, as well as preferential lending.

The research hypothesis was confirmed: the use of the methodological approach to strategic marketing planning, based on territorial marketing and artificial intelligence methods, refined target indicators for monotowns' development, leading to scientifically grounded strategic priorities.

Research Limitation: issues with insufficient or poor-quality statistical data for socio-economic indicators across many monotowns in Kazakhstan limit the full interpretation of these indicators, which are indirectly related to the study's objectives.

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WORKLOAD ALLOCATION AND
SECONDARY SCHOOL TEACHERS' RETENTION
AT CHAMWINO DISTRICT, TANZANIA

The study sought to assess the influence of workload allocation on teachers' job retention in Chamwino District Council of Tanzania. A cross-sectional research design was used with a quantitative research approach. The study used a sample size of 192 respondents selected using simple random sampling. The study involved a questionnaire as the main method of data collection. The collected data were analyzed using descriptive statistics and multiple linear regression analytical methods. The study found that, workload allocation in terms of class size and administrative duties were negative and insignificantly related to teachers' job retention. However, number of teaching hours and number of preparatory hours were positive and significantly related to teachers' job retention (p-value < 0.05). The study concludes that class size and administrative duties were the workload allocation factors that negatively affecting teacher job retention while number of teaching hours and number of preparatory hours were positively affecting teachers' job retention in rural areas at public secondary schools in Chamwino district council of Tanzania. Therefore, the study recommends that, reducing workload by hiring more staff and incorporating teaching assistants will enhance teachers' retention.

Key words: workload allocation, teacher job retention, public secondary schools, Chamwino district council, Tanzania.

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Мұғалімдердің тұрақтылығын жақсарту үшін
жұмыс жүктемесін оңтайландыру: Танзанияның Чамвино ауданының
мемлекеттік мектептерінен алынған түсініктер

Зерттеу Танзанияның Чамвино аудандық кеңесінде мұғалімдердің жұмыс орнындағы тұрақтылығына жұмыс жүктемесінің бөлінуінің әсерін бағалауды мақсат етті. Зерттеуде сандық зерттеу әдісімен көлденең зерттеу дизайны қолданылды. Зерттеуде қарапайым кездейсоқ іріктеу әдісімен таңдалған 192 респонденттің үлгісі қолданылды. Негізгі деректерді жинау әдісі ретінде сауалнама қолданылды. Жиналған деректер сипаттамалық статистика және көптік сызықтық регрессия әдістерімен талданды. Зерттеу жұмыс жүктемесінің сынып көлемі мен әкімшілік міндеттер түріндегі бөлінуі мұғалімдердің жұмыс орнындағы тұрақтылығына теріс және шамалы әсер ететінін анықтады. Алайда, сабақ беру сағаттары мен дайындық сағаттарының саны мұғалімдердің жұмыс орнындағы тұрақтылығына оң және маңызды әсер ететіні анықталды (p-value $< 0,05$). Зерттеу сынып көлемі мен әкімшілік міндеттер мұғалімдердің жұмыс орнындағы тұрақтылығына теріс әсер ететін жұмыс жүктемесінің бөліну факторлары екенін, ал сабақ беру сағаттары мен дайындық сағаттарының саны мұғалімдердің жұмыс орнындағы тұрақтылығына оң әсер ететінін көрсетеді. Сондықтан, зерттеу жұмыс жүктемесін азайту үшін көбірек қызметкерлерді жалдау және көмекші оқытушыларды тарту мұғалімдердің тұрақтылығын арттыратынын ұсынады.

Түйін сөздер: жұмыс жүктемесінің бөлінуі, мұғалімдердің жұмыс орнындағы тұрақтылығы, мемлекеттік орта мектептер, Чамвино аудандық кеңесі, Танзания.

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Оптимизация распределения рабочей нагрузки для улучшения удержания учителей: выводы из государственных школ района Чамвино, Танзания

Исследование было направлено на оценку влияния распределения рабочей нагрузки на удержание учителей на рабочем месте в районе Чамвино, Танзания. Был использован поперечный исследовательский дизайн с количественным подходом. В исследовании была использована выборка из 192 респондентов, выбранных методом простого случайного отбора. Основным методом сбора данных был опрос. Собранные данные были проанализированы с использованием описательной статистики и методов множественной линейной регрессии. Исследование показало, что распределение рабочей нагрузки в виде размера класса и административных обязанностей отрицательно и незначительно связано с удержанием учителей на рабочем месте. Однако количество учебных часов и количество подготовительных часов положительно и значительно связаны с удержанием учителей на рабочем месте (p-value < 0,05). Исследование делает вывод о том, что размер класса и административные обязанности были факторами распределения рабочей нагрузки, которые отрицательно влияют на удержание учителей, тогда как количество учебных часов и количество подготовительных часов положительно влияют на удержание учителей в сельских районах государственных средних школ в районе Чамвино, Танзания. Таким образом, исследование рекомендует, что сокращение рабочей нагрузки за счет найма большего числа сотрудников и привлечения ассистентов преподавателей улучшит удержание учителей.

Ключевые слова: распределение рабочей нагрузки, удержание учителей, государственные средние школы, районный совет Чамвино, Танзания.

Introduction

Worldwide, teachers' job retention has become an important one for researchers to investigate. Teacher job retention is the process of keeping teachers in their jobs. This can be done through a variety of methods, such as providing good working conditions, offering competitive salaries, and providing professional development opportunities (Mbiu, 2019). However, there are several reasons for teachers to leave their jobs, including low salaries, poor working conditions, and a lack of support from administrators. In addition, some teachers may feel that they are not able to make a difference in the lives of their students. As a result, it is important to understand the factors that contribute to teachers' job retention in order to improve retention rates (Boniface, 2019).

Teacher retention is crucial for effective education service delivery as it directly impacts the continuity and stability of the learning environment (Johnson et al., 2012). High teacher turnover rates can disrupt student learning and negatively affect school performance (Ingersoll & Strong, 2011). Retaining experienced teachers ensures that schools benefit from their expertise and institutional knowledge, which is essential for maintaining and improving educational quality (Darling-Hammond, 2010). Furthermore, consistent teacher presence helps build stronger relationships with students, fostering a supportive and conducive learning atmosphere (Borman & Dowling, 2008). Thus, prioritizing teacher retention is vital for sustaining high standards in education service delivery (Ronfeldt et al., 2013).

Workload allocation, incentives, and administrative support play important roles in teacher job retention. Proper workload allocation ensures that teachers are not overwhelmed and can maintain a healthy work-life balance, which is essential for long-term job satisfaction (Mbeki, 2023). In developed countries like the United States of America (USA), teacher retention is determined by such factors as monetary incentives, availability of resources, top management support, social respect, the working environment, teacher fulfillment, and student factors that include discipline, respect, and attitude (Watt, Richardson, & Wilkins, 2014). Likewise, in China, lack of monetary incentives, lack of adequate resources, lack of welfare services, huge workloads, lack of principal support, and poor teacher image all negatively affected teacher retention (Wei & Abdullah, 2016).

In Africa, teacher retention programs in schools are the same as in other parts of developed nations. Over the years, South Africa has experienced situations where teachers resigned from the profession in large numbers. Among the reasons given for the high turnover rate are: educator workload, teachers getting burdened with additional administrative responsibilities, capturing learners' marks for con-

tinuous assessment tests, preparing learner reports, lost prestige, and inadequate remuneration (Mazimbuko, 2015). In Gambia, their union noted a huge teachers exit from the teaching career, with reports of up to twenty thousand teachers leaving the profession every year (Hunter, 2016). Among the cited reasons for mass exit from the teaching profession were lack of adequate salaries, delays in salaries and benefits, promotion prospects, and working conditions (Mazimbuko, 2015). In Kenya, the Ministry of Education, through the Kenya Education Sector Support Program, aims to ensure teacher retention through affordable education services. It is therefore important to highlight the governance practices that influence teacher retention (Oduor, 2021).

Management and teacher job retention in Tanzania's Local Government Authorities (LGAs) has been a significant focus since the decentralization reforms began in the early 2000s. These reforms aimed to improve the efficiency and effectiveness of public service delivery by transferring responsibilities from the central government to local authorities (Max, 2019). Initially, these changes were met with challenges, including inadequate resources and capacity at the local level, which hindered effective management and retention of teachers (Mosha, 2018). However, over time, targeted interventions, such as capacity-building programs and improved funding mechanisms, have started to yield positive results (Mkumbo, 2021).

Reforms have played a crucial role in enhancing job retention among teachers in Tanzania's LGAs. Decentralization has allowed for more localized decision-making, enabling authorities to address specific challenges related to teacher management and retention more effectively (Tanzania Ministry of Education, 2017). Initiatives like the introduction of performance-based incentives and professional development opportunities have contributed to increased job satisfaction and reduced turnover rates among teachers (Mwombeki, 2020). Additionally, the implementation of policies aimed at improving working conditions and providing adequate support has been essential in retaining skilled educators within the LGAs (Nyanda, 2022).

The retention of teachers in public schools under Tanzania's Local Government Authorities (LGAs) is crucial for maintaining the quality of education and ensuring the sustainability of educational programs. High teacher retention rates lead to a more stable and experienced teaching workforce, which positively impacts student performance and overall school effectiveness (Mkonda, 2023). To improve teacher retention, the Tanzanian government has

implemented several initiatives and strategies. For instance, they have increased salaries and provided additional allowances to teachers working in remote areas to compensate for the challenges they face (Ministry of Education, Science and Technology [MoEST], 2022). Additionally, professional development programs and training opportunities have been established to enhance teachers' skills and career advancement prospects (World Bank, 2022). Furthermore, improvements in school infrastructure and the provision of housing for teachers in rural areas have also been prioritized to create a more conducive working environment (UNESCO, 2021).

Despite many strategies that have been implemented to retain teachers in Tanzania, there is still a problem of teacher attrition as well as labor turnover among public secondary school teachers in most rural councils including Chamwino, Dodoma. For instance, Boniface (2020) in the Dodoma region, specifically in the three districts of Kondoa, Mpwapwa, and Chemba, found that 67% of teachers perceive five key school-level sources of low retention in remote schools. These include a lack of accommodation and social services, school-level conflicts, poor teaching and learning conditions, teachers' involvement in decision-making, and a lack of alternative economic activities.

Research on workload allocation and job retention in various sectors outside Tanzania reveals significant findings that highlight the importance of balanced workloads in retaining employees. For instance, a study conducted by Bhatt and Chopra (2021) in India found a direct correlation between equitable workload distribution and job satisfaction, which subsequently influenced employee retention in the healthcare sector. Similarly, research by Liu et al. (2019) in China identified that high workload and lack of support significantly contributed to high turnover rates among nurses. Also, studies conducted in South Africa and Kenya in Africa reveal a significant relationship between workload and retention of employees in the public sector (Mbele, 2022; Kamau & Mwangi, 2021). Thus, these reviewed studies underscore the critical role that workload management plays in job retention across different sectors, illustrating a global concern about the impact of workload on employee retention.

Furthermore, studies in the education sector also reflect similar findings. Johnson et al. (2020) in the United States examined the effects of workload on teacher retention, revealing that excessive workloads were a major factor leading to teacher attrition. Additionally, a study by Smith and Nguyen (2022) in Australia highlighted that workload allo-

cation was a key determinant of teachers' decisions to stay in their profession. These studies collectively emphasize the global relevance of managing workload to enhance employees' retention. Moreover, number of studies carried out in the human resource management sector, such those by Malisa (2015), Boniface (2020), Mbiu (2019), and Thao (2015), were generalized or did not give information regarding the factors such as workload allocation that affect teacher retention in public secondary schools particular in rural secondary schools. Thus, there is a dearth of studies focusing specifically on workload allocation and teachers' job retention in Tanzania. A study focusing on teacher job retention in rural public secondary schools is salient to improve educational outcomes by ensuring consistent, quality teaching, addressing disparities in teachers' distribution, and fostering community stability and development through sustained local employment. Similarly, a study in this context may result in better student performance given that experienced teachers are more effective in delivering curriculum and managing classrooms (Akinyi & Odongo, 2020). Therefore, this study is set to assess the influence of workload allocation on teachers' job retention drawing experience from Chamwino District Council of Tanzania.

Literature review

Theoretical Review

The study used Job Demand-Control (JDC) theory to assess workload allocation and teachers job retention in rural areas at public secondary schools in the Chamwino district council. Job Demand-Control (JDC) theory was proposed by Karasek and Theorell in 1990. The JDC theory assumes that job demands and job control are the two primary factors that affect employees' job satisfaction, health, and well-being. Job demands refer to the physical, psychological, and social aspects of work that require effort, such as workload and time pressure, while job control refers to the extent to which employees can use their skills and knowledge to make decisions about their work (Bowen *et al.,* 2014).

The strength of the JDC theory is that it provides a clear framework for understanding the relationship between job demands and job control and how they impact employee outcomes. The theory suggests that high job demands coupled with low job control can lead to negative outcomes such as stress, burnout, and poor health (Ibrahim & Ohtsuka, 2014). However, a weakness of the JDC theory is that it oversimplifies the complex nature of work

and does not account for individual differences in coping mechanisms and resilience. Additionally, the theory assumes that job demands and job control are independent constructs, when in reality they may be interdependent and influenced by organizational factors (Ariza-Montes *et al.,* 2018).

The JDC theory is applicable to explaining the relationship between workload allocation and teacher job retention because it suggests that high workload demands without sufficient job control can lead to negative outcomes for teachers, such as stress and burnout. This, in turn, may lead to teacher turnover and decreased job retention. Therefore, it is important for schools to consider workload allocation and job control when designing work environments for teachers to promote job satisfaction and retention. Several recent studies have adopted the JDC theory in researches related to the relationship between job demand, work motivation and employee retention (Wu *et al.,* 2023; Zhou *et al.*, 2022; Portoghese *et al.,* 2020).

Empirical Literature Review

A study by Nzewi (2015) revealed that high workload allocation, inadequate resources, and low salaries were significant factors that affected teacher job retention in Nigeria. Similarly, a study by Oluoch (2017) found that workload allocation and inadequate administrative support were major factors that contributed to teacher attrition in Kenya. Furthermore, a study by Mawela and Pillay (2019) reported that workload allocation affected teacher job satisfaction, which in turn impacted retention in South Africa.

The study conducted by Manyeli and Mwakapeje (2021) found that equitable workload allocation and adequate resources were crucial for teacher retention in Tanzania. Similarly, a study by Ngowi (2019) found that workload allocation and inadequate administrative support were major factors that contributed to teacher attrition in Tanzania. Furthermore, a study by Komba and Mwakapeje (2020) reported that workload allocation affected teacher job satisfaction, which in turn impacted retention in Tanzania.

While these studies provide insights, they differ from the current study on factors influencing teacher job retention in rural areas at public secondary schools in Chamwino District Council. The current study specifically focuses on rural settings, where factors such as geographical isolation, limited infrastructure, and distinct socio-economic challenges may play a more significant role in teacher retention. Unlike the broader scope of previous studies, the current research aims to address the unique con-

ditions of rural public secondary schools, potentially revealing additional or differing factors that influence job retention in these specific environments.

Conceptual Framework

A conceptual framework is a structured, theoretical foundation or model that helps researchers and thinkers understand, analyze, and interpret complex phenomena or concepts within a specific field or context. In this study, the conceptual framework in Figure 1 shows the influence of independent variables on the dependent variable. The independent variable in this study is workload allocation while the dependent variable is teacher's job retention.

Independent Variables   Dependent Variables

Workload allocation

- Number of teaching hours
- Class size
- Number of preparatory hours
- Administrative duties

Teachers Job Retention
- Employee satisfaction
- Work life balance
- Intention to leave
- Intention to stay
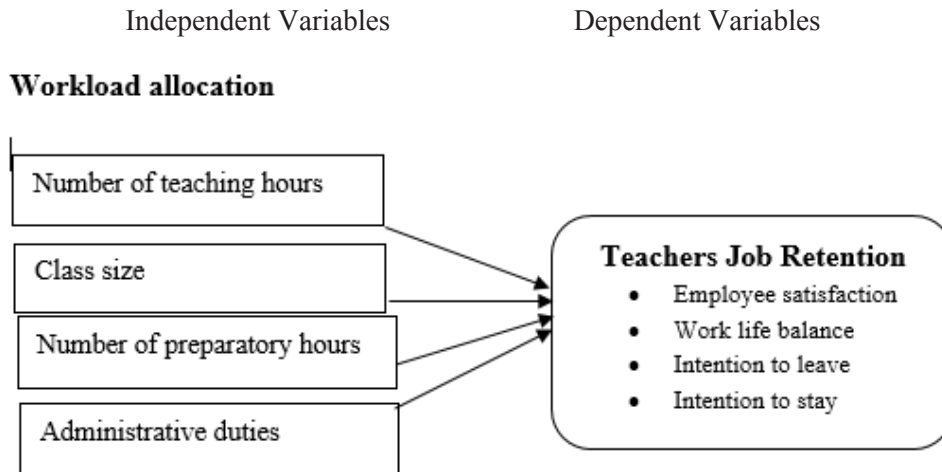
Figure 1 – Conceptual Framework
Note – authors' construct

Methodology

Research Design

This study adopted a cross-sectional research design. Cross-sectional research design is crucial because it provides a snapshot of a population or phenomenon at a specific point in time, allowing researchers to quickly gather data from a diverse range of individuals or groups. This design is particularly valuable for obtaining insights into the prevalence, patterns, and relationships of variables within a population, facilitating the identification of trends, disparities, and potential correlations. (Kothari, 2014)

Area of Study

The study was conducted in Chamwino district in Dodoma Region. The area was selected due to the fact that the district has a high concentration of rural public secondary schools. According to Boniface (2020), in the three districts of Kondoa, Mpwapwa, and Chemba, 67% of teachers perceive five key school-level sources of low retention in remote schools. Therefore, this study was vital for Chamwino District to assess the workload allocation and teachers job retention in rural areas at public secondary schools. Moreover, Chamwino district's educational landscape offers a critical case study due to its demographic and infrastructural characteristics. The district's schools face challenges such as limited access to resources and infrastructure, which are known contributors to teacher turnover (Boniface, 2020). By focusing on Chamwino, this study aims to uncover nuanced factors affecting teacher retention specific to rural public secondary schools, thereby contributing to obtain more information to inform policy and intervention strategies in educational development (Boniface, 2020).

Study Population

Population or universe means, the entire mass of observations, which is the parent group from which a sample is to be formed (Prabhat et al., 2015). The total population of this study included 372 secondary school teachers in selected 15 rural secondary schools in Chamwino District council (Table 1). Chamwino district in rural area has a total of 28 secondary schools, due to convience of time and accessibility researchers selected conveniently 15 secondary schools which was equivalent to 53.6% of all secondary schools in rural Chamwino district. Mohammed et al. (2013) argued that a sample of 15 is justifiable statistically for analysis, hence, selection of 15 secondary schools out of 28 schools statistically was justifiable for analysis.

Table 1 – Distribution of study population

Name of schools	Number of teachers
Handali secondary school	24
Dabalo secondary school	26
Haneti secondary school	25
Huzi secondary school	25
Mpwayungu secondary school	26
Chilonwa secondary school	25
Manzanse secondary school	25
Majeleko secondary school	25
Idifu secondary school	25
Fufu secondary school	25
Itiso secondary school	24
Segal secondary school	24
Maila secondary school	24
Mvumi secondary school	25
Ikowa secondary school	24
Total	**372**
Note – Chamwino District Report (2024)	

Sample size

A sample size for this study was calculated by Yamane (1967) simplified formula to calculate sample sizes for a known sample size (Equation 1). This formula was used to calculate the sample sizes. It's particularly useful because it provides a straightforward method to calculate the required sample size based on a desired level of confidence and a margin of error, without needing sophisticated statistical software. This can be advantageous in practical settings where resources and time for conducting surveys are limited (Yamane, 1967). A 95% confidence level and p = 0.5 are assumed for the equation below. Where n is the sample size, N is the population size, and e is the level of precision.

$$n = \frac{N}{1+N(e)^2} \qquad (1)$$

N = total population
n = sample size
E = margin error of 0.05
Now, the value of N is 372.

$$n = \frac{372}{1+372\,(0.05)^2}$$

n= 192
Therefore, the total sample size for this study was 192.

Sampling Technique

In this study, non-proportionate stratified sampling technique was adopted whereas 12.8 (approximately 13) secondary school teachers were selected from each secondary school that formed strata in the selected secondary schools. To finally select 13 secondary school teachers from each stratum, simple random sampling using lottery was used to select a total of 192 from 15 strata of secondary schools teachers in selected secondary schools in Chamwino district. Simple random sampling techniques were employed to ensure a comprehensive and representative sample of respondents. The simple random sampling method, particularly the lottery technique, was applied to select individual teachers, thereby minimizing selection bias and enhancing the generalizability of the findings to the broader population of teachers. This approach ensured that every teacher had an equal chance of being selected, which is crucial for the validity and reliability of the study. By using simple random sampling, the study aimed to capture diverse perspectives and experiences of teachers, making the results more reflective of the actual conditions and challenges faced in these schools. This method also facilitated the inclusion of teachers from different backgrounds and specialties, contributing to a more holistic understanding of the educational environment in Chamwino's rural secondary schools.

Data Collection Method

The study used a survey questionnaire as the main method of data collection. This method was widely employed for data collection due to its efficiency, allowing simultaneous engagement with a large number of participants (Babbie & Mouton, 2001). Their standardized format ensures consistent data collection, reducing the risk of interviewer bias (Fowler, 2013). Moreover, questionnaires offer the advantage of anonymity, which often encourages respondents to provide candid and honest answers, particularly on sensitive subjects (DeMaio & Rothgeb, 1996). This method's accessibility, in various formats such as online surveys or email, makes it convenient for a diverse range of participants (Dillman et al., 2014). Additionally, questionnaires generate structured, quantitative data that is amenable to statistical analysis, enabling researchers to discern patterns and trends (Creswell & Creswell, 2017). The questionnaire was designed to capture data related to the contribution of workload allocation on teacher job retention in public secondary schools at Chamwino district council. This includes the number of teaching hours, class size, number of preparatory hours, and administrative duties

(Smith & Jones, 2020; Brown, 2019). Additionally, the questionnaire was developed using five-point Likert scale questions (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree) (Boone & Boone, 2012). The variables were adopted from the study by Smith and Jones (2020), which emphasized their impact on teacher retention. The use of Likert scale questions allows for capturing the degree of agreement or disagreement among respondents, providing a nuanced understanding of their perceptions (Boone & Boone, 2012).

Data Analysis Methods

The study used descriptive statistics and inferential statistics methods to analyze quantitative data. Descriptive statistics ware used to summarize the data in terms of frequency, percents, and mean. Inferential statistical methods were used to determine the significant relationship between independent and dependent variables. Therefore, multiple linear regression analysis was applied. Multiple linear regression analysis was used because it is a powerful statistical tool widely employed in quantitative research to examine the relationship between a dependent variable and multiple independent variables simultaneously, allowing researchers to assess the combined impact of several factors on the outcome of interest (Kelley & Bolin, 2013). The choice of multiple linear regression was anchored to the fact that predictors were captured as continuous data as summarized in equation 2 and dependent variable was made as a continuous variable in form of index score through transformation. Pallant (2016) argued that multiple linear regression suitably is applied in a situation where both dependent variable and predictors exist as continuous data. Further, during data analysis, normality, multicollinearity and homoskedasticity tests were performed to test suitability for data for multiple leaner regression.

The following equation (Equation 2) introduce the multiple linear regression model to determine the influence of workload allocation on teacher job retention.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon \qquad (2)$$

Whereby:
Y= Index score for teacher's job retention
X_1=Number of teaching hours (number of hours)
X_2=Class size (number of students)
X_3=Number of preparatory hours (number of hours)
X_4=Administrative duties (number of supervisory duties)

Results and discussion

Descriptive statistics results of teachers' job retention

Table 2 presents descriptive statistics on the results of teachers' job retention. Four indicators are used to assess the teacher's job retention, including employee satisfaction, work-life balance, intention to leave and intention to stay. The responses were ranked on a five-point Likert scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree) and summarized into a mean and standard deviation (Jamieson, 2004). A score between 3.5 to 5 implies a high extent, a score between 3.5 to 2.5 means a moderate extent, and a scale between 2.4 to 1 implies a low extent (Boone & Boone, 2012). The use of a Likert scale is common in social science research to quantify subjective opinions and attitudes (Croasmun & Ostrom, 2011). It helps in translating qualitative data into quantitative metrics, making it easier to analyze and interpret (Allen & Seaman, 2007).

Table 2 – Teachers job retention (n=192)

Variables	Mean	Std. deviation
Employee satisfaction	4.036	0.473
Work life balance	3.239	1.051
Intention to leave	4.078	0.433
Intention to stay	3.727	0.152
Overall score	**3.784**	**0.527**

Note – Field Data (2024)

Findings in Table 2 indicated that, the overall mean score of 3.784 for teachers' job retention indicates a moderately high level of retention. Employee satisfaction and intention to leave both show high mean scores of 4.036 and 4.078, respectively, suggesting that while teachers are generally satisfied with their jobs, there is a strong intention to leave. Work-life balance, with a lower mean score of 3.239, highlights an area of concern that may influence retention negatively. However, the intention to stay, with a mean of 3.727, still reflects a positive outlook. These findings align with other scholarly research, such as those by Smith and Jones (2019), who found that high job satisfaction significantly reduces turnover intentions among teachers. Efforts by the government, including improved remuneration, professional development programs, and poli-

cies supporting work-life balance, have been implemented to enhance retention. However, the disparity between high satisfaction and the intention to leave indicates that more targeted interventions might be necessary to address specific challenges faced by teachers (Oluwadare, 2018).

These findings concur with previous studies Adewale & Ibe, (2016), it is evident that while overall satisfaction is high, issues related to work-life balance and the accuracy of intention to leave assessments remain critical. Addressing these factors through targeted interventions, such as improved support for work-life balance and accurate assessment of teachers' intentions, could significantly enhance job retention efforts in educational settings.

Descriptive statistics results for workload allocation

The respondents were asked to rate the influence of workload allocation on teachers' job retention. Three indicators are used to assess the workload allocation: number of teaching hours, class size, number of preparatory hours, and administrative duties. The descriptive statistics ware used to assess the level of agreement, as shown in Table 3. Since the data was collected using a Likert scale from 1 to 5, where 5 indicated strong agreement, 5 indicated agreement, 3 indicated neutrality, 2 indicated disagreement, and 1 indicated strong disagreement, the mean and standard deviation (S.D.) were computed to establish the findings. The score between 3.5 to 5 implies high extent, the score between 3.5 to 2.5 means moderate extent; and the scale between 2.4 to 1 implies low extent.

Table 3 – Descriptive statistics of workload allocation (n=192)

Variables	Mean	SD
Number of teaching hours	4.000	0.758
Class size	3.958	0.729
Number of preparatory hours	2.156	0.947
Administrative duties	3.885	0.816
Average score	**3.588**	**0.821**

Note – Field Data (2024)

Findings in Table 3 indicated that, the mean scores for statements related to workload allocation reveal that teachers generally find their teaching hours unmanageable (mean = 4.000, SD = 0.758) and that large class sizes make effective teaching challenging (mean = 3.958, SD = 0.729). However, teachers are split on the amount of pre-

paratory time which was below the overall mean score (mean = 2.156, SD = 0.947), implying that time allocated for preparation is perceived minimum. Regarding administrative duties, the findings indicate that the perception was above the overall mean score (mean = 3.942, SD = 0.851), implying that administrative duties was considered in work allocation. The overall average score of 3.588 (SD = 0.821) indicates a generally high extent of workload manageability.

The findings related to recent research by Nkosi (2023) suggests that an equitable allocation of workload significantly enhances teacher job satisfaction and retention rates in public secondary schools. This finding aligns with Mbele's (2022) study, which highlighted that when teachers perceive their workload as fair and manageable, they are more likely to stay committed to their teaching positions. Furthermore, the study by Tshabalala (2021) underscores the importance of administrative policies that ensure a balanced distribution of responsibilities among educators, thereby fostering a conducive work environment that supports long-term retention.

Inferential statics results

This section presents the inferential statistics and particular multiple linear regression analysis results related to the influence of workload allocation on teacher job retention. Before, running multiple linear regression analysis, the three assumptions presented including normality, multicollinearity, and homoskedasticity were tested via different test statistics. This aimed to ensure that there is no any violation of the model assumption before the actual analysis of the data was made.

Normality test

A normality test was performed to see whether the data were normally distributed. The Shapiro-Wilk test was performed to determine normalcy. The significant value for all variables was 0.000. Therefore, all the variables had significant Shapiro-Wilk test at 0.05 and thus were normally distributed as indicated in Table 4.

Multicollinearity test

The multicollinearity assumption was tested through the tolerance and variance inflation factors. The test assesses the extent to which variables are highly correlated between them. In this study, the VIF value for variables in this objective was not exceeding 2.0; hence, the data for this study had no multicollinearity problems. Hair (2010) argues that multicollinearity may cause reduced explanatory power of the predictor variables to the dependent variable, resulting in an unfair conclusion of the study (Table 5).

Table 4 – Normality Test

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Number of teaching hours	0.200	192	0.000	0.925	192	0.000
Class size	0.297	192	0.000	0.786	192	0.000
Number of preparatory hours	0.323	192	0.000	0.751	192	0.000
Administrative duties	0.212	192	0.000	0.641	192	0.000

Note – Field Data (2024)

Table 5 – Multicollinearity Test

Variables	Collinearity Statistics	
	Tolerance	VIF
Number of teaching hours	0.365	2.743
Class size	0.221	4.518
Number of preparatory hours	0.168	5.944
Administrative duties	0.287	3.622

Note – Field Data (2024)

Homoskedasticity test

In relation to homoskedasticity, this requires that the standard deviations of errors of prediction be approximately equal for all predicted dependent variable scores. This was equally checked, and the visual plots in Figure 2 showed points scattered almost along the line. As such, the residuals were approximately equal in width at all values of the predicted dependent variable.
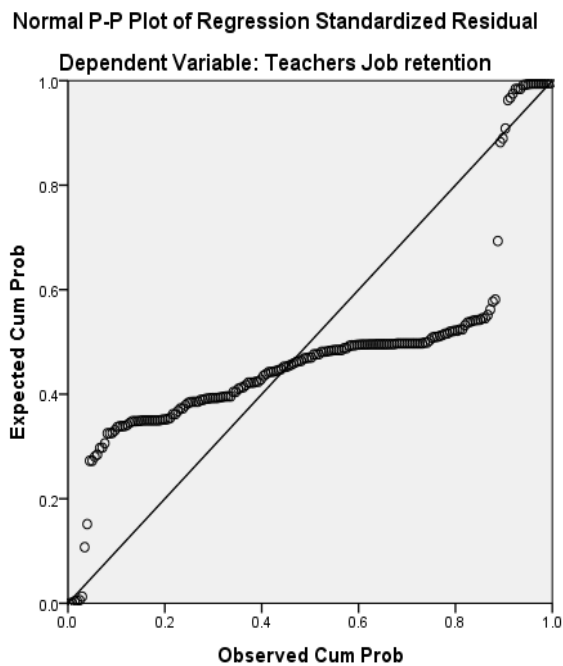
Figure 2 – Homoskedasticity test
Note – Field Data (2024)

Regression coefficients for workload allocation

Results in Table 6 shows the coefficient of determination (R^2) under model one was 0.59, which meant the independent variables (number of teaching hours, class size, number of preparatory hours, and administrative duties) explained 59% of the variations in teachers' job retention. Moreover, the F-value was 11.8 and the p-value was 0.000. This

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meant that the regression model was significant with p-values less than 0.05 at the α = 0.05 level in explaining the relationship between independent variables (number of teaching hours, class size, number of preparatory hours, and administrative duties) and teachers' job retention.

Table 6 – Regression coefficients for workload allocation

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.39	0.541		0.072	0.943
Number of teaching hours (number of hours)	0.142	0.192	0.110	0.127	0.001
Class size (number of students)	-0.111	0.113	-0.109	-1.111	0.912
Number of preparatory hours (number of hours)	0.165	0.176	0.157	2.175	0.031
Administrative duties (number of duties)	-0.141	0.100	-0.115	-1.410	0.160

Dependent Variable: Teachers' job retention
R-Square = 0.59
F-value = 11.8, p-value = 0.000

Note – Field Data (2024)

Findings in Table 6 show that the number of teaching hours is positively and significantly related to teachers' job retention (β= 0.192, p-value = 0.001). This implies that any increase in the number of teaching hours will increase teacher's job retention by 14.2%.

Moreover, Table 6 indicated that, class size was negative and insignificant related to teachers' job retention (β= -0.111, p-value = 0.912). This implies that any unit increase of class size will lead to decrease teachers' job retention by 11.1%.

Furthermore, findings in Table 6 revealed that, number of preparatory hours was positively and significantly related to teachers' job retention (β= 0.165, p-value = 0.031). This implies that any unit increase in the number of preparatory hours will lead to an increase in teachers' job retention by 16.5%.

Additionally, findings in Table 6 show that administrative duties ware negatively and insignificantly related to teachers' job retention (β= -0.141, p-value = 0.160). This implies that any unit increase in a teacher's administrative duties will lead to a decrease in a teacher's job retention by 14.1%.

The findings in lines with previous studies that have shown that the number of teaching hours, class size, number of preparatory hours, and administrative duties positively correlates with teachers' job retention in educational settings across various contexts (Adesina, 2020; Kamau & Mwangi,

2021). Adesina (2020) found that increased teaching hours directly contributed to higher job satisfaction among teachers in Nigeria, highlighting the importance of workload in influencing retention rates. Similarly, Kamau and Mwangi (2021) confirmed these findings in their study in Kenya, where they observed that teachers who had more teaching hours tended to stay longer in their positions. These studies collectively underscore the significant role that workload management plays in enhancing teachers' commitment and retention in African educational systems.

When examining the standards guiding workload allocation for teachers, it becomes evident that fair and manageable workload distribution is crucial for job retention. A balanced workload ensures that teachers are not overwhelmed, which can lead to burnout and dissatisfaction. Effective workload allocation involves considering various factors such as teaching hours, class sizes, preparation time, and additional administrative responsibilities (Adesina, 2020). Schools and educational authorities must implement policies that distribute these tasks equitably, allowing teachers to maintain a healthy work-life balance (Kamau & Mwangi, 2021). Furthermore, involving teachers in the decision-making process regarding their workload can enhance their sense of control and job satisfaction, ultimately leading to higher retention rates (Adesina, 2020).

Conclusions

The study concludes that various workload allocation factors significantly influence teacher retention. Specifically, class size and administrative duties negatively affect teacher job retention, implying that policy makers should strategically formulate mechanisms to reduce number of students in classrooms to make class sizable and become motivational and retention tools for secondary teachers. Further, rationalization of duties assigned to secondary teachers with administrative duties by allocating manageable duties will form basis for motivation and retention. On the other hand, the number of teaching and preparatory hours positively influence teachers' retention, giving connotation that policy makers embrace and the current number of teaching and preparatory hours, and if possible consider reducing the current hours allocated to teachers for teaching and preparation so as to maximize teachers' motivation and retention. Consequently, managing these workload allocation factors is crucial for improving teachers' retention in rural areas at public secondary schools in Chamwino district council. The study recommends that to the President's Office, Regional Administration and Local Government Tanzania (PO-RALG), (Ministry of Education, Science and Technology (MoEST) and Chamwino District Council, to carry out human resources audit to establish the number of required secondary teachers to fill the existing vacancies and thereafter perform human resources planning and forecasting to curb the gap at present and future. It is from the suggested human resources audit, planning and forecasting, strategically, reducing workload allocation can be achieved by hiring additional teaching staff to distribute the workload more evenly, ensuring that no single teacher is overwhelmed. Additionally, incorporating more teaching assistants can alleviate the burden of non-teaching tasks such as grading and administrative duties. Further, introducing top up on regular remuneration and provision of housing and hardship allowances will strategically enhance teachers' job retention in rural settings in Chamwino district. Introducing efficient time management and planning tools can help teachers manage their workload better. Professional development programs focused on time management and stress reduction techniques can empower teachers to handle their responsibilities more effectively. Also, it is important to note this study was limited on public secondary located in rural areas. Thus, future studies should consider the private secondary school for comparative of findings and broader policy advice in Tanzania. Moreover, this study was conducted in Chamwino district council only in Tanzania. Other studies should be conducted in other district councils in Tanzania for generasability of the findings. Furthermore, a qualitative study using methods like interviews, observations and focus group discussions with different key stakeholders including teachers, education officers, district executive directors, village leaders and other will help to enrich quantitative findings.

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ANALYSIS OF THE CURRENT STATE AND DIAGNOSIS OF KEY PROBLEMS OF PUBLIC ADMINISTRATION IN THE HEALTHCARE SECTOR IN THE REPUBLIC OF KAZAKHSTAN

Healthcare is one of the most important areas of activity of any state. One of the goals of sustainable development, the United Nations (UN) proclaims "Ensuring a healthy lifestyle and promoting well-being for all at any age." The efforts of all countries of the world are directed towards the realization of this goal, since the health of the nation and the high standard of living of the country's population are important components of the sustainable development of each country. In this regard, the article emphasizes that healthcare is one of the most important areas of activity of any state, and effective public administration in this area is critical, so the goal was to develop proposals and recommendations to ensure high-quality and affordable medical care for all segments of the population. For this purpose, various research methods were used, such as the method of scientific abstraction, the method of induction and deduction, literature analysis and statistical analysis of modern data in dynamics over the past 5 years, the method of generalization and comparative analysis, which were used to identify problems and develop recommendations to improve the availability and quality of medical care, ensure public health and improve the quality of life of the population. In light of the challenges Kazakhstan has faced in public health management, including pandemics, demographic changes and technological innovations, we have proposed: introducing an automated data processing system in all regions of the country, improving the system of monitoring and analyzing health management, optimizing the financing system, developing a mechanism for monitoring and overseeing the provision of high-quality and affordable medical care to all segments of the population.

Key words: health, healthcare, affordable medical care, quality of life, pandemic, recommendations, public health management

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Қазақстан Республикасындағы денсаулық сақтау саласын мемлекеттік басқарудың қазіргі жай-күйін талдау және негізгі проблемаларын диагностикалау

Денсаулық сақтау кез келген мемлекет қызметінің маңызды бағыттарының бірі болып табылады. Біріккен Ұлттар Ұйымы (БҰҰ) тұрақты дамудың мақсаттарының бірі «салауатты өмір салтын қамтамасыз ету және кез-келген жастағы барлық адамдардың әл-ауқатына ықпал ету» деп жариялайды. Осы мақсатты іске асыруға әлемнің барлық мемлекеттерінің күш-жігері бағытталған, өйткені Ұлт денсаулығы мен ел халқының жоғары өмір сүру деңгейі әрбір елдің орнықты дамуының маңызды құрамдас бөлігі болып табылады. Осыған байланысты, мақалада денсаулық сақтау кез келген мемлекет қызметінің маңызды бағыттарының бірі болып табылатыны және осы саладағы тиімді мемлекеттік басқару өте маңызды екенін ескере отырып халықтың барлық топтарына сапалы және қол жетімді медициналық көмек көрсету үшін ұсыныстар әзірлеу мақсаты қойылды. Ол үшін ғылыми абстракция әдісі, индукция және дедукция әдісі, әдебиеттерді талдау және соңғы 5 жылдағы динамикадағы заманауи деректерді статистикалық талдау, проблемаларды анықтау және медициналық көмектің қолжетімділігі мен сапасын жақсарту, қоғамдық денсаулықты қамтамасыз ету және сапаны жақсарту үшін ұсыныстар әзірлеу үшін пайдаланылған жалпылау әдісі және салыстырмалы талдау сияқты әртүрлі зерттеу әдістері

демияны, демографиялық өзгерістерді және технологиялық инновацияларды қоса алғанда, ден-саулық сақтауды мемлекеттік басқару саласында Қазақстан тап болған сын-тегеуріндерді ескере отырып, біз: еліміздің барлық өңірлерінде деректерді өңдеудің автоматтандырылған жүйесін енгізуді, денсаулық сақтауды басқару мониторингі мен талдау жүйесін жақсартуды, қаржылан-дыру жүйесін оңтайландыруды, халықтың барлық топтарына сапалы және қолжетімді медицина-лық көмек көрсетуді қамтамасыз етуді бақылау мен қадағалау тетігін дамытуды ұсындық.

Түйін сөздер: денсаулық сақтау, денсаулық сақтау, қолжетімді медициналық көмек, өмір сапасы, пандемия, ұсыныстар, қоғамдық денсаулықты басқару.

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Анализ современного состояния и диагностика ключевых проблем государственного управления сферы здравоохранения в Республике Казахстан

Здравоохранение – одно из важнейших направлений деятельности любого государства. Одной из целью устойчивого развития, Организацией объединенных наций (ООН) провозглаша-ется «Обеспечение здорового образа жизни и содействие благополучию для всех в любом воз-расте». К реализации данной цели направлены усилия всех государств мира, так как здоровье на-ции и высокий уровень жизни населения страны являются важными компонентами устойчивого развития каждой страны. В связи с чем, в статье подчеркивается, что здравоохранение – одно из важнейших направлений деятельности любого государства, а эффективное государственное управление в этой сфере имеет критическое значение, поэтому была поставлена цель разрабо-тать предложения и рекомендации с целью обеспечения качественной и доступной медицинской помощи всем слоям населения. Для этого применялись различные методы исследования, такие как метод научной абстракции, метод индукции и дедукции, анализ литературы и статистический анализ современных данных в динамике за последних 5 лет, метод обобщения и сравнительный анализ, которые использовались для выявления проблем и разработке рекомендаций для по-вышения доступности и качества медицинской помощи, обеспечения общественного здоровья и улучшения качества жизни населения. В свете вызовов, с которыми столкнулся Казахстан в сфере государственного управления здравоохранения, включая пандемии, демографические из-менения и технологические инновации, нами были предложены: внедрение автоматизированной системы обработки данных во всех регионах страны, улучшить систему мониторинга и анали-за управление здравоохранением, оптимизировать систему финансирования, развить механизм контроля и надзора за обеспечением качественной и доступной медицинской помощи всем сло-ям населения.

Ключевые слова: здоровье, здравоохранение, доступная медицинская помощь, качество жизни, пандемия, рекомендации, государственное управление здравоохранением.

Introduction

State health management is a system of organization and coordination of the activities of state bodies, as well as private and public structures, aimed at providing the population with quality and affordable medical services, preserving and strengthening the health of citizens, controlling the quality of medical care, and ensuring the effective functioning of the healthcare system as a whole (Law of the Republic of Kazakhstan, 2003). State management in the field of healthcare includes the development and implementation of medical policy, legislative regulation in the field of healthcare, financial support for medical programs, control over the quality and safety of medical services and drugs, as well as the development of medical science and education. The main goal of state health management is to ensure the accessibility and quality of medical care for all segments of the population and to reduce the level of morbidity and mortality (Law of the Republic of Kazakhstan, 2003). The tasks of state health management include a wide range of measures and actions aimed at ensuring the effective operation of the healthcare system and maintaining the health of the population. Below are the main tasks of state management in this area (Law of the Republic of Kazakhstan, 2003):

Ensuring the availability of medical services: The state should create conditions so that all citi-

zens have access to quality and affordable medical services, including prevention, diagnosis, treatment, and rehabilitation.

Improving the quality of medical care: An important task is to ensure a high level of quality of medical care, including through control over the professional training of medical workers, ensuring compliance with treatment and diagnostic standards, as well as the quality of medical equipment and drugs.

Development of the disease prevention system: State health management should actively assist in the development and implementation of programs for the prevention of common diseases, such as cardiovascular diseases, cancer, infectious diseases, and others.

Ensuring the financial stability of the healthcare system: An important task is to ensure stable financing of the healthcare system to guarantee its continuous operation and development.

Development and implementation of measures to optimize the operation of the healthcare system: The state should conduct an analysis of the efficiency and effectiveness of the healthcare system and develop measures to optimize it, including improving the organization of work of medical institutions, optimizing the processes of providing medical care, and improving the management system.

Development of medical science and education: State health management should support the development of medical science and education, contributing to the improvement of the qualifications of medical workers and the development of new methods of diagnosis and treatment.

Ensuring the safety of medical services: An important task is to ensure the safety of medical services, including the protection of patients' rights, control over the quality and safety of medical technologies, drugs, and procedures.

These tasks are the main directions of the activities of state management in the field of healthcare and are aimed at ensuring a high level of health and well-being of the population.

Literature review

The literature review was based on authors who deeply studied the issues of "healthcare governance." Their works formed the basis for analyzing current research, publications, and scientific works that cover various aspects of healthcare system organization and management. Notably, "Reforming Health Care Systems: Experiments with Managed Competition in Four Countries" by Alain C. Enthoven and Kieke G. H. Okma (Kieke, 2001). This book provides a comparative analysis of healthcare system reforms in four countries: the United States, Germany, the Netherlands, and the United Kingdom, highlighting the advantages and disadvantages of different management models .

«Improving Health Care Management in the 21st Century» by Louis C. Gapenski and George H. Pink offers practical strategies and recommendations for enhancing healthcare management (Louis C., 2007). It covers aspects such as financial management, quality of medical services, and organizational processes .

In «Health Systems Governance in Europe: The Role of European Union Law and Policy,» Elias Mossialos, Monika Sagan, and others explore the role of European Union legislation and policy in healthcare organization (Kessel, 2016). The book provides recommendations for improving governance in this field .

«Policy Tools and Instruments for Health Systems Managemen» by Reinhard Busse, Miriam Blümel, and others discusses various tools and methods for managing healthcare systems, including examples of best practices and recommendations for their application (Busse, 2014).

«Good Governance for Digital Health» by the World Health Organization (WHO) presents recommendations and strategies for using digital technologies in healthcare to enhance service quality, accessibility, and state governance in this area .

Since the research topic remains relevant for many years, we examined works containing ways to improve the state health care system.

Table 1 – Comparative analysis of the works of authors who studied the issues of «public health management»

№	Authors	Proposals, developments and a model for improving the State Health Institution
	Muhammad Zia ud Din, Xu Yuan Yuan	It was demonstrated that public governance has a significant impact on public health service delivery through the intervening variable of shared governance using both social information processing theory and collaboration theory. (Zia ud Din, Yuan, 2024)
	Rıdvan Ot	For an effective public health care system, it is important for the state to know that the funds spent on quality health care are reflected in a reduction in health care costs. A statistically significant relationship between health care costs (per capita) and effective secondary health care has been proven (Ot, 2024).

№	Authors	Proposals, developments and a model for improving the State Health Institution
	Nawaj Mehtab Pathan, Chandan Kumar	AI in improving diagnostics, developing personalized treatment plans, and enhancing patient care across a range of allied health specialties. By discussing case studies and advances, this study highlights the profound impact of AI innovations in advancing more efficient and effective healthcare practices (Pathan, Kumar, 2024).
	Vince Tebay, Westim Ratang	Presented new organizational cultural characteristics that have a dominant influence on the formation of organizational culture to achieve optimal quality of medical services (Nebay, Ratang, 2024)
	Paolo Candio	For sustainable healthcare development, the author believes that it is necessary to ensure alignment of goals among stakeholders when developing policies and business strategies. The COVID-19 pandemic has accelerated the digital transformation of numerous healthcare services and products, which must be used to improve this system (Candio, 2024)
Note – complied by the authors based on (Zia ud Din, Yuan, 2024), (Ot, 2024), (Pathan, Kumar, 2024), (Nebay, Ratang, 2024), (Candio, 2024)		

These research studies and publications provide valuable insights and recommendations for improving healthcare governance. They also serve as a foundation for developing further strategies and policies in this field.

Methodology

This article examines the problems and offers recommendations and proposals for improving public health management, firstly, by the methods of induction and deduction, which allowed the authors to establish their own point of view by studying the opinions of many scientists studying the sphere of public health management. The method of scientific abstraction provided an opportunity to see the overall picture of the planned presentation of the State Healthcare Institution, which revealed the patterns and problems of public health management. The methodology also included an analysis of the literature, which contributed to the search for the best recommendations of various experts and specialists who studied the sphere of public health management. Conducting a statistical analysis of modern data provided by state official sources in dynamics over the past 5 years to identify the current state of public health management in the Republic of Kazakhstan. The generalization method was necessary to simplify and systematize information on the main reforms and activities carried out in the field of public health management and their implementation in order to identify patterns for further improvement and application to a wider group of the population. Using comparative analysis to identify similar situations in different countries and develop proposals for solving their problems based on the experience of successful countries, as well as introducing innovations in public health management.

Results and discussion

Government healthcare management holds immense significance for society and the state as a whole, for the following reasons (Rakhimbekova, 2014):

1. National Health Provision: The health of the population is a fundamental resource for societal development. Government healthcare management aims to provide quality medical services, prevent diseases, and reduce mortality.

2. Social Protection: Healthcare plays a crucial role in ensuring social protection for citizens, especially vulnerable groups such as children, the elderly, disabled individuals, and low-income populations.

3. Economic Development: A healthy and productive workforce is a key factor in economic development. Government healthcare management contributes to minimizing economic losses due to illnesses and invests in the health of future generations.

4. Social Stability: A robust healthcare system reduces public discontent and social protests, as people feel more secure and confident about their future.

5. Enhanced Education and Culture: Healthy children and adults perform better in education and work, leading to improved overall education and cultural levels in society.

6. Public Health Protection: Government healthcare management involves developing and implementing measures to protect the population from epidemics, pandemics, and other threats to public health.

Thus, government healthcare management strategically ensures societal well-being and sustainable state development.

According to the **Concept of Healthcare Development in the Republic of Kazakhstan until 2026** , the Ministry of Healthcare of the Republic of Kazakhstan has formulated an implementation plan based on this concept. However, the report provided at the beginning of 2023 revealed the results of reforms and measures taken at this stage.

Table 2 – Main reforms /main activities at the beginning of 2023

№	Name of reforms/main activities at the beginning of 2023	Performance information		
		plan	fact	comments
1	Target indicator 1. Life expectancy at birth	73,7	74,4	Indicator reached.
	Development of a system for monitoring the state of the environment inside public buildings for children	-	-	The event is completed.
	Development of a school medicine standard	-	-	The event is completed.
2	Target indicator 2. Level of population satisfaction with the quality and accessibility of medical services provided by medical institutions	69,6	58,8	Execution at 84.5%.
	Development of a Roadmap for the development of phthisiopulmonological service in the Republic of Kazakhstan for 2023-2025	-	-	The event is completed.
3	Target indicator 3. Share of adapted foreign technologies from the total number of introduced new technologies	16,8	20	The indicator has been reached.
4	Target indicator 6. Maternal mortality	11,0	17,0	Execution at 64.7%.
5	Target indicator 7. Infant mortality	7,5	7,68	Compliance at 97.7%.
	Development of a plan providing effective mechanisms and implementation measures to reduce infant mortality			The event is completed.
6	Target indicator 8. Investments in fixed assets in healthcare	248,5 млрд тг	257,2 млрд тг	The indicator has been reached.
7	Target indicator 9. Reliability indicator of laboratory tests of SES	92%	93,8%-100%	The indicator has been reached.
8	Target indicator 10. The level of provision of medical workers to the rural population in accordance with the minimum standard for the provision of medical workers in the regions	87,3	91,3	The indicator has been reached.
	Introduction of a model of continuous integrated medical education			The event is completed.
9	Target indicator 11. Share of purchases by the Unified Distributor of domestic medicines and medical products as a percentage of the total purchase volume	37,0	34%	Compliance at 91.9%.
	Introduction of amendments and additions to the order of the Minister of Health of the Republic of Kazakhstan dated August 20, 2021 No. KR DSM-89 "On approval of the rules for the provision of medicines and medical products within the framework of the guaranteed volume of free medical care and (or) in the system of compulsory social health insurance, as well as rules and methods for forming the need for medicines and medical products within the framework of the guaranteed volume of free medical care and (or) in the system of compulsory social health insurance» for the introduction of a methodology for calculating the need for drugs and medical devices according to the average daily dose (DDD WHO) and their automation	-	-	The event is completed.
10	Target indicator 12. Average Hirsch index of personnel of medical education and science organizations	0,34	0,36	The indicator has been reached.
11	Target indicator 13. Level of coverage of the population in the compulsory health insurance system	84,6	82,4	Compliance at 97.4%.
Note – compiled by the author based on the source (Resolution of the Government of the Republic of Kazakhstan., 2022, Ministry of Health of the Republic of Kazakhstan., 2023)				

Target Indicator 1 on the expected life expectancy at birth shows a positive trend, indicating the effectiveness of measures taken in healthcare. The second target indicator, related to the level of population satisfaction with the quality and accessibility of medical services, did not reach the planned level, however, work in this direction continues. The third indicator, concerning the share of adapted foreign technologies, shows a positive trend, indicating the development of the introduction of advanced methods and technologies in the medical field. This will allow a more accurate assessment of the effectiveness of measures to combat oncological diseases. Target Indicator 6, concerning maternal mortality, shows that execution is 64.7%. This may indicate the need for additional efforts to achieve the planned level of reduction in maternal mortality. Target Indicator 7, concerning infant mortality, shows performance at the level of 97.7%. This indicates that the measures taken to reduce infant mortality have been largely successful. Development of a plan with effective mechanisms and measures for implementation to reduce infant mortality. Investments in fixed capital in healthcare exceeded the planned level, amounting to 257.2 billion tenge against the planned 248.5 billion tenge. This indicates the state's priority in providing financial resources for improving healthcare and developing its infrastructure. The reliability indicator of SES laboratory studies has also been achieved at the level of 93.8%-100%, indicating a high level of accuracy and reliability of laboratory diagnostics, which is important for effective provision of medical care to the population. Thus, the analysis of these indicators speaks of a fairly high level of achievement of target indicators in healthcare, indicating work in the right direction and the level of state attention to this sphere. From the analysis of the indicated target indicators, it can be seen that most of the goals have been achieved or are at a sufficiently high level of execution. The level of provision of medical workers to the rural population has been increased, indicating successful efforts in the direction of solving the problem of lack of medical personnel in remote areas. The introduction of a model of continuous integrated medical education allows updating and improving the knowledge of medical specialists, which is a key factor for improving the quality of medical care. The share of procurement of domestic medicines and medical devices also remains at a high level, which contributes to the support of local production and reduces dependence on imports. Making changes and additions to the rules for providing medicines and medical devices speaks of a desire to improve efficiency and transparency in the procurement system, which is important for providing quality medical care. The average Hirsch index of the staff of medical education and science organizations has increased, indicating the growth of scientific and educational activity in the field of healthcare. The level of coverage of the population in the system of compulsory social medical insurance (CSMI) is also maintained at a high level, which guarantees the availability of medical care for wide sections of the population.

So, based on the presented data, we can conclude that certain progress has been made in implementing measures to improve the healthcare system, however, some aspects require further attention and improvement and despite some achievements, there is still a lot of work in the field of reducing mortality from various diseases and improving the overall health of the population. The continuation of measures to improve the healthcare system and a wider implementation of innovative approaches can help achieve goals in reducing mortality and improving the quality of life of citizens. We will consider the current state of the healthcare system in dynamics over the past 5 years in the following figures. Let's consider the general indicators of the healthcare sector in Figure 1.

Let's calculate the growth rate for each indicator by year:

1. Number of hospital beds:

2018 : $(98,371 - 99,465) / 99,465 * 100\% \approx -1,10\%$

2019 year: $(96,286 - 98,371) / 98,371 * 100\% \approx -2,12\%$

2020 year: $(127,464 - 96,286) / 96,286 * 100\% \approx 32,33\%$

2021 year: $(125,034 - 127,464) / 127,464 * 100\% \approx -1,91\%$

r: $(125,034 - 125,034) / 125,034 * 100\% = 0\%$

2. Number of beds for sick children:

2018 year: $(4,591 - 4,629) / 4,629 * 100\% \approx -0,82\%$

2019 year: $(4,445 - 4,591) / 4,591 * 100\% \approx -3,18\%$

2020 year: $(5,192 - 4,445) / 4,445 * 100\% \approx 16,81\%$

2021 year: $(5,888 - 5,192) / 5,192 * 100\% \approx 13,38\%$

r: $(5,888 - 5,888) / 5,888 * 100\% = 0\%$

3. Number of hospital organizations:

2018 year: $(788 - 853) / 853 * 100\% \approx -7,63\%$

2019 year: $(749 - 788) / 788 * 100\% \approx -4,95\%$

2020 year: $(773 - 749) / 749 * 100\% \approx 3,20\%$

2021 year: $(773 - 773) / 773 * 100\% = 0\%$

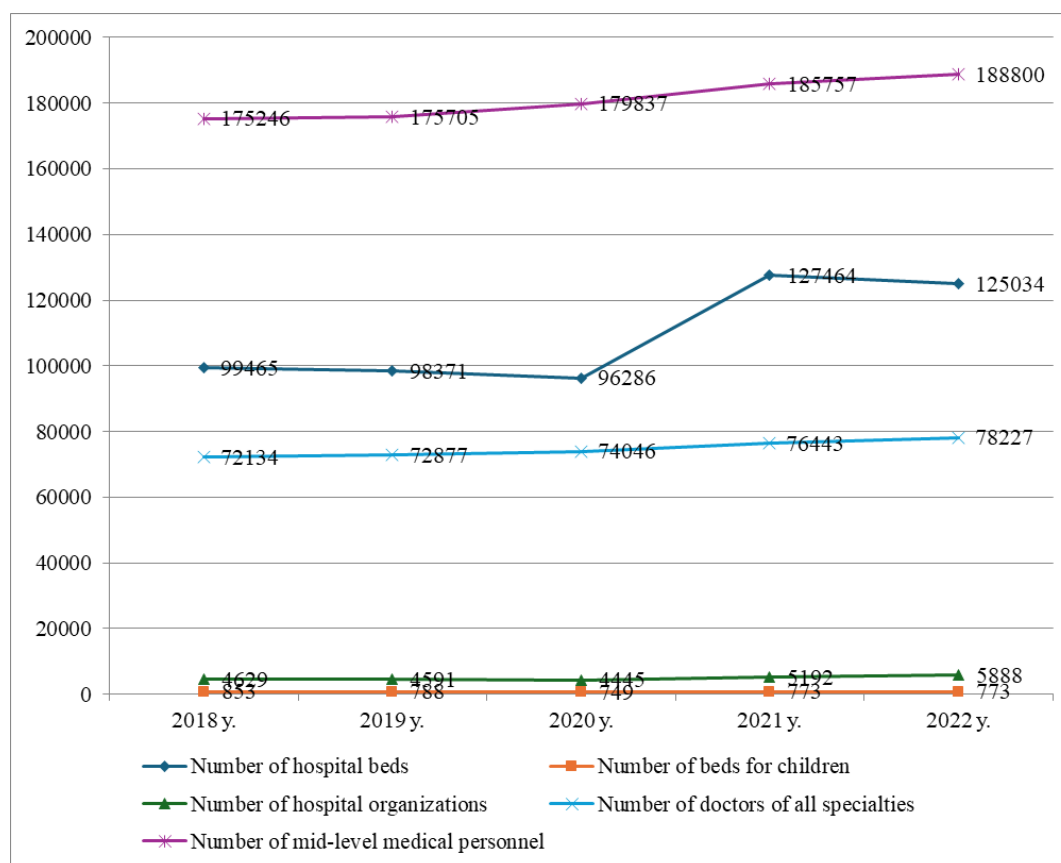r: $(773 - 773) / 773 * 100\% = 0\%$

Figure 1 – Health indicators for 2018-2022
Note – compiled by the authors (Bureau of National Statistics., 2022)

4. Number of doctors of all specialties:

2018 year: (72,877 − 72,134) / 72,134 * 100% ≈ 1,03%

2019 year: (74,046 − 72,877) / 72,877 * 100% ≈ 1,61%

2020 year: (76,443 − 74,046) / 74,046 * 100% ≈ 3,24%

2021 year: (78,227 − 76,443) / 76,443 * 100% ≈ 2,33%

r: (78,227 − 78,227) / 78,227 * 100% = 0%

5. Number of paramedical personnel:

2018 year: (175,705 − 175,246) / 175,246 * 100% ≈ 0,26%

2019 year: (179,837 − 175,705) / 175,705 * 100% ≈ 2,35%

2020 year: (185,757 − 179,837) / 179,837 * 100% ≈ 3,29%

2021 year: (188,800 − 185,757) / 185,757 * 100% ≈ 1,64%

2022 year: (188,800 − 188,800) / 188,800 * 100% = 0%

From the analysis, it can be seen that for the period from 2018 to 2022, there is a different dynam-

ics of changes in the health care of the Republic of Kazakhstan:

Number of hospital beds:

In 2020, there was a significant increase of 32.33%, which may be due to the expansion of medical facilities and an increase in demand for medical services.

There was little decline or stability in subsequent years.

Number of beds for sick children:

The indicator grew throughout the period, with the largest growth in 2021.

Number of hospital organizations:

In 2018 and 2019, there was a decrease of 7.63% and 4.95%, respectively, but in subsequent years this indicator remained stable.

The number of doctors of all specialties has been gradually growing throughout the period, which indicates an increase in human resources in healthcare.

The number of mid-level medical personnel has also been steadily growing, which indicates an increase in the number of medical personnel in general.

Thus, although some indicators showed temporary fluctuations or declines, overall healthcare in the Republic of Kazakhstan demonstrates a stable positive trend with an increase in resources and human resources, that is, the current trend emphasizes the desire to improve healthcare and the availability of medical care for the population, however, the indicator of the provision of the population with bed capacity is calculated using the following formula:

OK = CH * 10,000 / CH, where:

OK – provision of the population with bed capacity -.

CH – number of beds – 125807 in the Republic of Kazakhstan;

CH – population at the end of the reporting period in the Republic of Kazakhstan 20 million people (Population of Kazakhstan (2023)).

Unit of measurement – per 10 thousand people.

OK = 125807 * 10000/20000000 = 63 beds per 10 thousand people.

According to OECD data, the bed provision rate in Japan is 131 beds, in South Korea – 123 beds and in Germany – 80 beds per 10 thousand people.

Thus, the bed provision rate in Kazakhstan is not high, even with the existing growth dynamics of all indicators.

How effective these indicators are can be determined by the volume of services provided in this area, Figure 2.
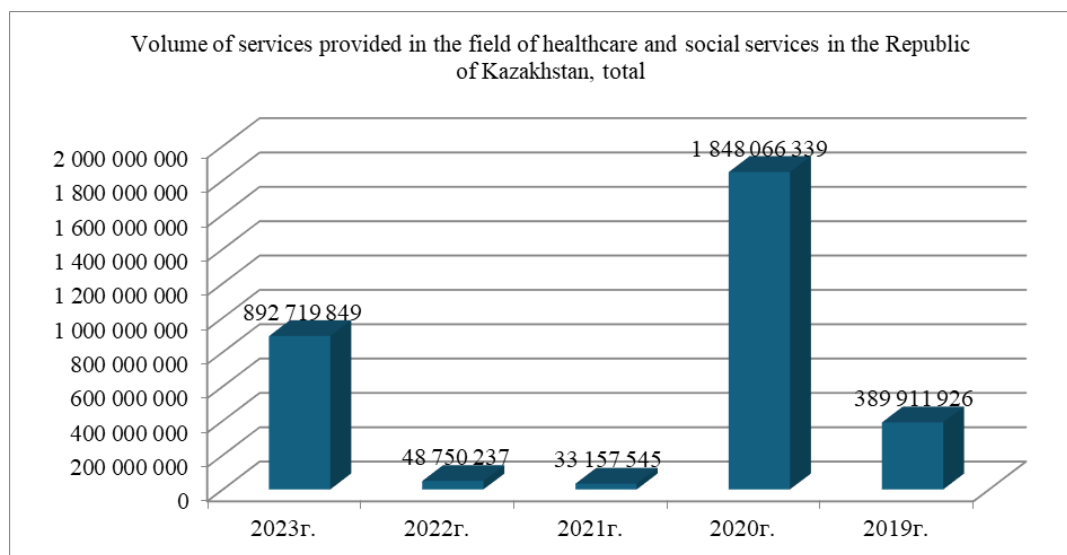
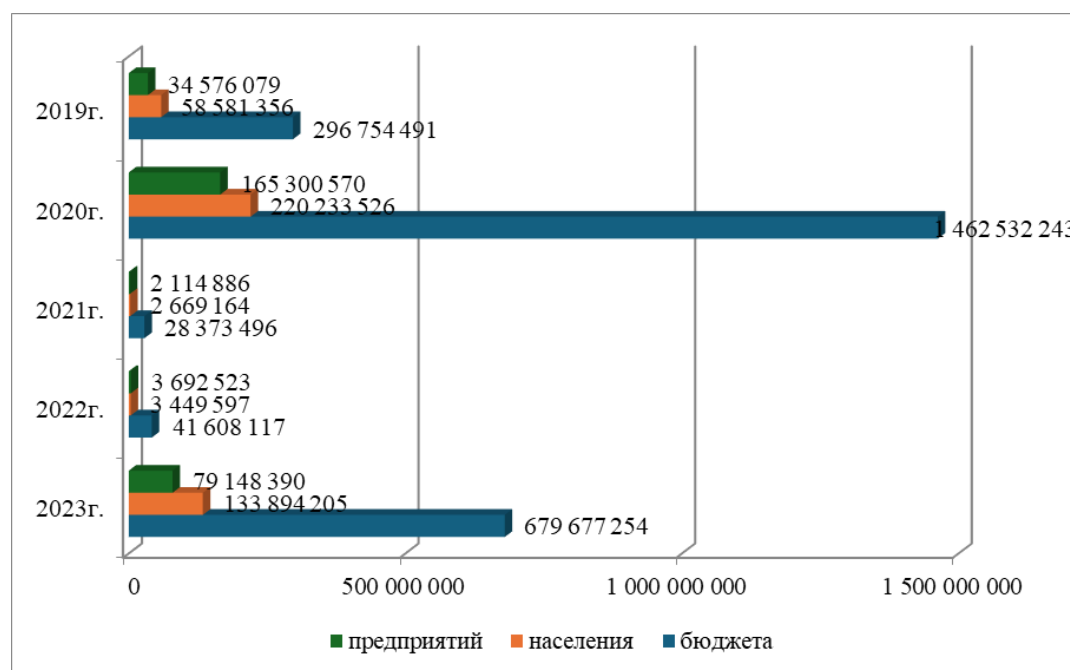**Figure 2 –** The total volume of services provided in the field of healthcare
and social services in the Republic of Kazakhstan .
Note – Compiled by the authors (Bureau of National Statistics., 2022)

From the data provided, there is a significant increase in the volume of services provided in the field of healthcare and social services in the Republic of Kazakhstan for the period from 2019 to 2023. The total volume of services increased from 389,911,926 tenge in 2019 to 892,719,849 tenge or by 129.02% in 2023. If in 2020 compared to 2019, the growth was almost a 4-fold increase – a sharp jump was associated with the COVID-19 pandemic. But already in 2021, there was a decrease in the volume of services by 5051.43%. In 2022, compared to 2021, the growth was 147%. In 2023, compared to 2022, the volume of services provided in the field of healthcare and social services in the Republic of

Kazakhstan increased almost 45 times. This is due to the allocation of funds for healthcare and social programs within the state budget due to an improvement in the economic situation or a revision of priorities in financial planning. There is also an increase in the financial participation of the population and enterprises in the healthcare system, which is associated not only with inflation and rising prices for medical services and social programs, but also with the population's concern for health.

However, it is important to compare what situation is observed in developed countries in the field of rendered services in the field of healthcare and provision of social services in the world, for exam-

ple, in Germany this figure was 234 billion euros in 2023, which is equivalent to 2840 euros per capita (Zdrorovye (2023)), while the figure in the Republic of Kazakhstan is 892,719,849 tenge, which is 198,372 euros and is equivalent to 9.9 euros per capita. Which means the need for greater strengthening of the State Healthcare Institution, to improve

this system in order to improve services and provide high-quality and affordable medical care to the entire population of Kazakhstan.

This growth is largely due to an increase in financing from the budget, population, and enterprises, which we will consider in more detail in the figure.

Figure 3 – The budget of services provided in the field
of healthcare and social services in the Republic of Kazakhstan
Note – compiled by the authors (Bureau of National Statistics., 2022)

It should be noted that the financing from the budget increased from 296,754,491 tenge in 2019 to 679,677,254 tenge in 2023. There was also a significant increase in financing from the population and enterprises.

Comparing the data on the budget of services provided in the field of healthcare and social services in the Republic of Kazakhstan over the last five years, the following conclusions can be made:

1. The total volume of services provided in 2023 significantly increased compared to previous years, reaching 679,677,254 tenge.

2. Compared to 2019, the volume of services in 2023 increased by more than 100%, indicating a significant increase in demand for healthcare and social services in the country.

3. Looking at individual sources of funding, it can be noted that in 2023 the budget for providing services from the funds of the population and en-

terprises increased, which also indicates the growth of social responsibility of citizens and business towards healthcare.

4. This trend reflects the efforts of the state in the field of healthcare and social protection of the population, but it may also indicate an increase in demand for these services, which requires further attention and development of the healthcare system for effective satisfaction of the population's needs.

Thus, it can be concluded that although there are still problems in the healthcare of the Republic of Kazakhstan, the state management in this area is improving and achieving certain successes in solving key tasks.

If we compare the budget of services rendered in the field of healthcare in Germany and Kazakhstan again, we will also notice a huge difference, since the German budget was 14.5 billion euros, while the domestic budget is 679,677,254 tenge or

1,505,949.56 euros, that is, almost 90% less. This means that it is necessary to continue working to improve the healthcare system and solve problems to ensure high-quality and affordable medical care for all citizens.

Having studied the current state of the State Healthcare Institution, we have accumulated the problems of healthcare in the Republic of Kazakhstan in Table 2.

These issues require comprehensive solutions at the level of state policy, including improving healthcare financing, developing medical infrastructure, improving the qualifications of medical personnel, and strengthening preventive measures.

Table 2 – Problems in the healthcare system of Kazakhstan

1.№	Problems in the healthcare system	Description of problems
	Insufficient funding	Despite the increase in budget expenditures on health care, funds are not enough to provide quality medical services, purchase modern equipment and train medical personnel.
	Uneven distribution of resources	Most medical institutions and qualified specialists are concentrated in large cities, which creates problems of access to medical services for residents of remote and rural areas.
	Low level of service quality	Some health care facilities experience poor quality of care due to outdated equipment, insufficient staff qualifications, and insufficient quality control measures (Ministry of Health., 2022).
	Shortage of medical personnel	There is a shortage of qualified medical professionals in various areas of healthcare, which leads to overload of existing specialists and a decrease in the quality of medical services.
	Insufficient disease prevention	Low public awareness of prevention methods, limited access to preventive measures and insufficient funding for disease prevention programs lead to increased morbidity and mortality.
	Waste of resources	Ineffective use of health care resources, including drugs and medical equipment, can lead to unnecessary costs and poor access to health care services.
	Population aging	The rising average age of the population and the increase in the number of older people pose new challenges to the healthcare system, including an increased burden on pension and medical systems.
Note – compiled by the author based on the source (Forbes, 2019, Ministry of Health., 2022)		

The geopolitical situation in the world, complicated by the consequences of the COVID-19 pandemic, has led to managerial and financial restrictions that determine the basis of health policy as a focus on "prioritization" and limitation of public spending. Public administration in the field of health care is formed in each country in accordance with the traditions of the state structure, economic situation.

It should be noted that many foreign healthcare management models are examples of successful implementation of certain strategies, methods, and technologies that can be adapted and applied in Kazakhstan to improve its healthcare systems.

Existing healthcare models are conditionally divided into budgetary, social insurance and private, the division of which is based on differences in the sources of financing of medical care, the degree of coverage of the population by state support programs, the methods of its organization and the forms of ownership of service providers.

In particular, examples of effective health management in some countries demonstrate a high level of medical care and good health outcomes, including low infant mortality and high life expectancy. Often have a mixed financing model, combining public and private funds, which ensures accessibility and high quality of services. In addition, successfully developed countries in the field of public health management introduce new technologies and medical innovations, which contributes to the improvement of the efficiency and quality of services. Also, much attention in these countries is paid to disease prevention, which reduces treatment costs and improves the overall health of the population. Effective government regulation and quality control in such countries contribute to stability and a high level of trust in the health care system. They provide education and training systems with highly qualified medical specialists. Thus, let us consider effective models of public health care in the world.

Healthcare reforms in the UK are aimed at introducing market elements into the national healthcare system to stimulate efficient work at the micro level: responsibility for the "purchase" of medical services is separated from responsibility for the "delivery"; "national healthcare trusts" are created; general practitioners are fund holders; the introduction of a strategic purchasing system for medical care; a model of contractual relations; increased control over care; free choice of service providers by the patient. As you can see, the reforms being carried out cover two aspects: increased competition among healthcare providers and increased independence in management. Similar approaches to healthcare system management by the state are in such countries as Greece, Denmark, Ireland, Spain, Iceland, Italy, Norway, Portugal, Sweden.

The social insurance model assumes the participation of organizations of various forms of ownership in the provision of medical services, and the state acts as a guarantor in providing citizens with these services, and is typical for Germany, France, the Netherlands, Austria, Belgium, Switzerland, Canada, Japan, etc. The US healthcare system is a striking example when the financing of the healthcare system is almost completely transferred into "private hands" and private medical organizations are included in the management process, which are responsible for providing accessible and high-quality medical care.

Key principles of the healthcare system in Singapore (Reforming the healthcare system in Singapore, 2017):

Universal coverage: All citizens of Singapore have access to basic medical care.

Social security system: The Singapore healthcare system provides a wide range of services at affordable prices.

Preventive medicine: Attention is paid not only to treatment but also to disease prevention.

Private participation: Private and public institutions interact to provide quality medical care.

Successes and achievements in healthcare:

High level of population health: Singapore is often noted as one of the countries with the highest life expectancy.

Effective epidemic management: Singapore successfully dealt with epidemics such as SARS and COVID-19, thanks to prompt measures and close cooperation between public and private institutions.

Thanks to the system of public and private participation, residents of Singapore have access to high-quality healthcare services.

Management and financing mechanisms:

Medical insurance: All citizens and permanent residents of Singapore are required to make mandatory contributions to medical insurance, which provides financing for the healthcare system.

State funding: The state actively participates in healthcare financing, ensuring the availability and quality of medical services.

Private medical institutions: The development of the private sector stimulates competition and improves the quality of medical services.

The Singapore healthcare management model is an example of successful implementation of effective financing, management, and provision of medical services, leading to a high level of population health and quality medical care.

Features of the Swedish healthcare model (Afanasiev, 2023):

Universal coverage: All residents of Sweden have the right to medical care provided by public and private medical institutions.

Decentralized system: Healthcare in Sweden is organized at the regional level, with regional and local health authorities, which provides flexibility and adaptation to local needs.

Attention is paid to preventive medicine: Sweden actively invests in preventive measures and education of the population in the field of a healthy lifestyle.

Advantages and results of the system:

High level of population health: Sweden is often recognized for one of the countries with a high level of health and life expectancy.

Free access to medical care: The Swedish model provides accessibility and free medical services for all residents of the country.

Innovative technologies and research: Sweden is known for its innovative approaches to medical science and technology, which contributes to the development of the medical industry and the improvement of the quality of medical services.

Funding and management model:

National insurance system: Sweden has a national system of compulsory medical insurance, which is funded by tax funds.

Regional management: Regional health authorities have significant autonomy in managing healthcare in their areas.

Private participation: Private medical institutions complement the state system and provide patient choice.

The Swedish healthcare model is an example of a successful combination of public and private participation, providing a high level of accessibility, quality, and innovation in the medical field.

Structure and management of the German healthcare system (Afanasiev, 2023).

Healthcare system structure:

Mandatory health insurance: Germany has a system of mandatory health insurance, including public and private insurance companies.

Public and private participation: Patients can choose between public and private medical institutions and insurance companies.

Decentralized system: Healthcare management is organized at the level of federal states and districts.

Key principles and management tools: Financing through the mandatory insurance system: Insurance premiums are paid by employers and workers, as well as individuals, providing financing for the healthcare system.

Centralized regulation: The Federal Ministry of Health oversees the system and sets standards and norms.

Quality control: There are a number of organizations and agencies responsible for quality control of medical services and pharmaceuticals.

Evaluation of effectiveness and achievements:

High level of accessibility and quality of medical care: Germany is known for its advanced technologies and highly qualified medical staff.

Successful disease control: Germany effectively controls the spread of infectious diseases and other health threats to the population.

Innovations and research: The country actively invests in medical research and development, contributing to the development of new treatment and diagnostic methods.

The German healthcare system is an example of a successful combination of mandatory insurance, private participation, and centralized management, which provides a high level of accessibility, quality, and innovation in healthcare.

Success factors in effective healthcare management models include the following aspects:

Universal coverage: Effective management models provide access to quality medical services for all citizens, regardless of their social status or financial situation.

Preventive medicine: The main focus is not only on treating diseases but also on their prevention through lifestyle, vaccination, regular medical check-ups, etc. This reduces the burden on the healthcare system and improves the quality of life of the population.

Decentralization and autonomy: Management models based on decentralization and granting significant autonomy to regional or local levels are more flexible and adaptive to the specific needs of the population.

Innovations and technologies: The introduction of innovative technologies, digital solutions, and medical achievements contributes to improving the quality and efficiency of medical service, as well as optimizing management and monitoring processes.

Financing system: Effective management models provide sustainable and fair financing of the healthcare system, providing the necessary resources to maintain a high level of service and innovation.

Personnel and training: The presence of qualified and motivated medical workers, administrators, and managers plays a key role in the effective functioning of the healthcare system.

Monitoring and evaluation: Regular monitoring, evaluation of results, and feedback help identify problems and make adjustments to improve the efficiency of the system.

Effective healthcare management models usually combine a combination of these factors, which allows achieving high results in providing quality and accessible medical care to the population.

An analysis of existing models of public administration has shown that there is no universal system of administration, the level of centralization of power, regulation of industry processes, the optimal financing system, etc. varies greatly. Today, for the effective organization of healthcare, both at the national and regional levels, as one of the priority areas of development, it is necessary to search for new combinations of structural elements of basic models and ways of adapting them to the existing conditions in the country's industry. To improve the state management of healthcare in Kazakhstan, the following recommendations can be suggested (OECD, 2021):

1. Introduction of digital technologies: Automation and digitalization of processes in healthcare will improve the availability and quality of medical services, simplify the procedures for making appointments and receiving prescriptions, and increase the efficiency of medical data management.

2. Improving the monitoring and analysis system: The development of a system for collecting and analyzing population health data will make it possible to more accurately assess the current situation and predict trends in morbidity. This will allow more efficient allocation of resources and the development of disease prevention measures.

3. Optimizing the financing system: Revising the structure of health financing, taking into account the socio-economic needs of the population and the characteristics of the health market, can contribute

to more efficient use of funds and increased accessibility of health services.

4. Development of control and supervision mechanisms: Strengthening control over the quality of medical services, drugs and medical equipment will help prevent the negative consequences of errors and violations in the health sector.

5. Professional development of staff: Investments in the professional development of health professionals as well as in the improvement of their working conditions contribute to improved quality of care and patient satisfaction.

6. Developing community feedback mechanisms: Establishing a feedback system between patients and health authorities will help identify problems and deficiencies in the health system and develop measures to address them.

7. Promoting healthy lifestyles: Conducting information campaigns and programs to promote healthy lifestyles among the population contributes to reducing morbidity and improving public health.

These recommendations, according to the authors, will improve the efficiency and accessibility of the health care system, which in turn will lead to improved public health and quality of life of the population.

Conclusion

Given that healthcare is a crucial area of activity for any society, effective government management in this sphere is essential to prevent errors and avoid their repetition during the development and improvement of Kazakhstan's healthcare system.

Indicators of healthcare development not only show growth dynamics but also demonstrate progress in implementing development programs within the healthcare sector. Understanding foreign successes and applying them can stimulate innovative approaches and ideas in Kazakhstan's healthcare domain. This encourages the development of new methods, technologies, and strategies. Furthermore, it fosters international collaboration, allowing for knowledge exchange, experience sharing, and resource utilization to achieve common healthcare goals.

By implementing best practices and methods from international experiences, we can enhance the quality of medical services, improve accessibility, and enhance the overall health of the population.

In summary, healthcare management plays a significant role in the development and enhancement of Kazakhstan's healthcare system. The competitiveness of the healthcare system in the global community is determined, among other things, by the scientific potential of the industry and the recognition of the results of its scientific activities. By 2025, a paradigm shift will occur in medicine: medical workers will base their decisions on the principles of predictive, preventive, personalized and collaborative medicine. Today, the scientific community is focused on studying and using patients' genetic data, access to Big Data, and Internet of Things technologies.

According to Accenture (2017), successful application of artificial intelligence is expected to increase industry profits by 55% by 2035, accelerate annual economic growth in 12 countries by 2035, and rationalize resources (for example, by reducing errors in drug dosages) .

The healthcare system must be tasked with creating «step-by-step» accessibility to medical services. The core of the patient-oriented model is the need to increase the industry's infrastructure (by 2025, it is planned to build and open about 200 primary health care facilities in rural areas) and increase the availability of doctors to patients by reducing the workload (up to 1,700 assigned population per general practitioner). In order to achieve the target indicators that the industry sets for itself, it is rational to increase the share of private investment by creating attractive conditions for them.

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BIBLIOMETRIC ANALYSIS OF RESEARCH
ON PUBLIC ADMINISTRATION REFORM

This article complements the initial studies based on bibliometric analysis. The relevance of bibliometric analysis is the study of a large amount of data in scientific research. The purpose of the study is to conduct a bibliometric analysis to determine the state of research toward reforming public administration and future areas of research and mapping.

In our research strategy, 151 articles were selected on the reforms carried out in the civil service in 1991-2023. With VOSviewer software, bibliometric networks were created and visualized. The bibliometric analysis of the study used the Scopus academic base to reform the public administration system. The conclusions of these studies were drawn and presented in this article providing an opportunity for further understanding of the systematic development of the study.

The success of the study informed the dynamics of research development in the public administration system. The best articles, publications, and studies of the most cited authors and organizations on the management of the state system are identified, and they contribute to the scientific literature, describing its current state.

In studies using bibliometric analysis, elements of transparency and productivity have been identified that can be used in public administration and e-government reforms. In addition, the study demonstrated the experience of developing public system management reforms in peer-reviewed publications around the world. In Kazakhstan, these studies have been intensively conducted since 2020, while in developed countries such as the United States and the United Kingdom, a high rate of use has been observed since 2010.

Key words: Kazakhstan, public administration reforms, VOSviewer, bibliometric analysis, literature review, scientific mapping, analysis of joint words.

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Мемлекеттік басқару жүйесін реформалау бойынша
зерттеулердің библиометриялық талдауы

Зерттеу мемлекеттік әкімшілік жүйені басқару негізінде жүргізілген реформалардың алғашқы библиометриялық талдауы. Библиометриялық талдаудың өзектілігі деректердің үлкен көлемін өңдеп талдауда. Мемлекеттік жүйені басқару бағытындағы жүргізілген реформалардың қазіргі жай күйі мен болашақ даму бағыттарын анықтап, библиометриялық талдау жүргізу зерттеуіміздің басты мақсаты.

Мақаламызда ерекше стратегия қолдану арқылы 1991 – 2023 жылдары зерттеу бағытымыз бойынша 151 мақала таңдалды. Библиометриялық желілерді құрып, визуализация жасауда VOSviewer бағдарламалық құралы таңдалды. Мемлекеттік әкімшілік жүйені басқару бағытындағы зерттеулерде Scopus академиялық дереккорына талдау жүргізілді. Жинақталған деректерге тұжырымдар жасау арқылы зерттеуіміздің даму бағытын түсіндік.

Зерттеу нәтижелері мемлекеттік жүйені басқару бағытындағы зерттеулердің даму қарқыны туралы толық және сенімді ақпарат берді. Біздің зерттеуіміз мемлекеттік басқару бағытындағы ең жақсы мақалаларды, басылымдарды, ең көп сілтеме жасалған авторлар мен ұйымдардың

зерттеулерін анықтап, қазіргі жай күйін сипаттау арқылы ғылыми әдебиеттерге үлес қосады.

Мемлекеттің әкімшілік басқару жүйесінде жүргізілген реформалар электронды үкіметтің ашықтығы мен тиімділік элементтерін анықтады. Бұдан басқа зерттеуімізде үздік әлемнің басылымдарының даму тенденциясын картаға түсіру арқылы анықтадық. Мемлекеттік жүйені басқару бойынша жүргізілген реформаларда АҚШ, Ұлыбритания елдерінің даму тәжірибесі 2010 жылдан бастау алса, ал Қазақстан 2020 жылы белсенді қарқын алған.

Түйін сөздер: Қазақстан, мемлекеттік басқару реформалары, VOSviewer, библиометриялық талдау, әдебиеттерге шолу, ғылыми картаға түсіру, бірлескен сөздерді талдау.

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Библиометрический анализ исследований
по реформированию системы государственного управления

Наше исследование является первым библиометрическим анализом проведенных реформ в области управления государственной системой. Библиометрический анализ актуален при обработке и анализе больших объемов данных. Целью исследования является проведение библиометрического анализа с целью определения состояния исследований в направлении реформирования государственного управления, определение и картирование будущих направлений исследований.

При проведении исследования через специальную стратегию были выбраны 151 статья, направленная на реформирование государственного управления в период 1991-2023 годов. С помощью программного обеспечения Vosviewer были созданы и визуализированы библиометрические сети.

Библиометрический анализ исследования был проведен на основе академической базы данных Scopus в области реформирования государственного управления. На основании данных исследований были сделаны выводы, отражающие в данной статье и дает возможность для дальнейшего понимания систематического развития исследования.

Результаты исследования предоставили полную и достоверную информацию о темпах развития исследований в области государственного управления. Были выявлены лучшие статьи, публикации, исследования наиболее цитируемых авторов и организаций в области государственного управления и вносит свой вклад в научную литературу, описывая ее текущее состояние. В исследованиях с использованием библиометрического анализа были определены элементы прозрачности и производительности, которые могут быть использованы в реформах госуправления и электронного правительства. Кроме того, исследование продемонстрировало опыт и тенденции развития реформирования государственного управления в рецензируемых изданиях по всему миру. В Казахстане данные исследования интенсивно стали проводится начиная с 2020 года, в то время в таких развитых странах как США, Великобритания наблюдается высокий темп использования уже с 2010 года.

Ключевые слова: Казахстан, реформы государственного управления, VOSviewer, библиометрический анализ, обзор литературы, научное картографирование, анализ совместных слов.

Introduction

Kazakhstan has moved to reform the entire system of public administration since gaining independence. The state construction coincided with the formation of new structures and the change in power. The transition to a market economy completely changed the structure and functions of state administration. As a result of large-scale reforms, a state management system was formed that was adapted to the market economy. Currently, effective state management systems are being implemented throughout the country. This policy is aimed at creating a system of professional public administration based on the business qualities of civil servants (Monobayeva et al., 2015). The disintegration of the Soviet Union faced serious problems related to reforming governing institutions, which contributed to economic growth and the creation of all conditions for the population of member states, including Kazakhstan. The main problem of developing states was to improve the

social situation of the population and reduce corruption risks (Baimenov et al., 2019).

Over the 30-year history of the country, the goal of Administrative Reforms has been associated with the economic crisis, rapid social changes, and development trends, so changing the existing traditional model of Public Administration through public administration institutions is a requirement of time (Bespalov, 2016).

Kazakhstan is introducing foreign practices of public administration reform. We see the experience of such a complex reform in the achievements of the USA, Great Britain, China, Sweden, and Singapore, which have developed competitive political systems. Since the day of independence, our country has gone through five stages of public administration reform. Although the development of each stage was characterized by its characteristics, the goal was the same. In the initial period, in 1991-1997, the state management system was institutionalized, and in 1997-2007, the creation of a "Professional State" was aimed at creating an optimal management structure for modern public service and market economy. Further reform of the public administration system falls on 2007-2017, based on the meritocracy and professional position of a civil servant. The administrative development of the state in 2017-2020 was associated with economic problems in the country. For this purpose, we aimed to optimize the functions of the state apparatus and increase its responsibility through the reduction of state intervention in the economy. In the current period, a new model of the state aimed at solving social and economic tasks was developed (Bhuiyan, 2011). However, it is necessary to intensify scientific research in this area. Post-Soviet countries that have gained independence are striving for democratic governance of the country and the construction of economic systems, given the speed of change in the world. Currently, in the vast majority of post-Soviet republics, efforts to reform state management and public service have met the goals specified in the stage of sustainable development. These goals included equal access to the potential within democratic development, transparency, trust management, and the formation of fair and accountable institutions (Baimenov at al., 2022).

For the study of bibliometric data, we conducted a bibliometric analysis of our research area. In this regard, we used the VOSviewer software to visualize the search. During the study, we used the cluster analysis method to study the research of scientists and experts. This study affects research in the field of Public Administration System Management. This approach allows future researchers to identify successful literary readings on the above topics.

This paper provides insight into the interaction of intellectual research findings among researchers and highlights the value of keywords in identifying research topics and promoting interdisciplinary communication. Since 2007, interest in this direction of research has increased. The study was a study of the state of related research on reforms in our industry and the most influential related publications in the Scopus database. To determine the success of Public Administration reform, we will try to answer the original question (RQ1): What is the level of public administration reform research? Our next question (RQ2): What are the latest trends in public administration reform? Our final research question (RQ3): What are the studies in the direction of the reform of the management of the administrative system of the state?

Literature review

Although Kazakhstan has achieved some success in reforming the state administration system, the majority of related studies have focused on reconstruction since independence. Public administration reforms are the main problem of the government today and the main task. In most cases, public administration reforms fail. There are principles of reform implementation programs for the government and its supporters based on a review of existing literature. Although the understanding of the effective implementation of Public Administration Reforms has been formed, there are shortcomings in practice (Repucci, 2014). Correcting these shortcomings requires a systematic approach that takes into account various factors, such as development in the public sector and other sectors (Repucci, 2014). There is a lack of critical assessments by scientists and researchers worldwide on how to reconstruct Kazakhstan. Such a situation prevents understanding the logic of the successful implementation of state reforms. The direction of development of the sphere of public administration has a special character in terms of socioeconomic, political, and administrative management. Carrying out the reform of civil services is connected with the changes in the world that created the need for the implementation of the construction of public administration and the development of national administration institutions. The success of such PAs depends on the proper management of the administrative political system (Lapuente et al., 2020).

We distinguish between the works of domestic and foreign scientists who considered effective ways to solve the problems of this field. Based on the findings of Baimenov et al. (2019), Bokayev et al. (2023), Buribayev et al. (2015), and Smagulova et al. (2019), these methods can be used. For example, Smagulova (2019) found that Kazakhstan can optimize the number of civil servants by reforming public administration. This is believed to be the basis for reducing bureaucracy and corruption by digitizing and outsourcing several functions to a competitive environment.

In the works of domestic researchers in the direction of public administration reforms, important factors in solving problems were identified. Russian researcher I.V. Vyakina reported her experience reforming state control and supervision activities, which showed the importance of state control and supervision of the security of the business environment. According to A.G. Barabashev's research, Weber's and new state management practices cannot exclude the necessary tools and procedures for addressing administrative crises (Barabashev, 2016).

Goldfinch et al. (2013), a researcher from the University of Nottingham, UK, among foreign scholars, believe that although low-income, weak countries pay financial attention to public administration reform, there are many obstacles to solving these problems. Haruna. (2001), a scientist from the Texas National University of the USA suggested that taking into account the limitations of past reforms, it is necessary to eliminate these gaps by creating a relationship with a broader concept of public administration. However, although there is an understanding of how to develop civil service reform, in practice, the topic becomes more complex (Repucci, 2014). The main thing is to focus on reforming, creating an environment of honest competition for the benefit of society, creating a business, and managing the industry with the help of education and skills (Bastykov et al., 2023).

Our study takes into account the concepts of researchers related to public administration reforms and shows the development directions of this field.

Methodology

The article includes a bibliometric analysis to map the study of reforms in the management of the administrative system of the state, which has been carried out since 1991. The study used the contri-butions of scientists to publication indicators and keywords. In addition, scientific mapping was carried out to analyze the best publications, successful countries in the scientific field, top citations, and keywords. VoSviewer software from Scopus helps to identify relevant documents, sources, authors, and organizations in scientific publications and to graphically visualize relationships Donthu et al. (2021). In our bibliometric research, we consider the possibility of working with software integration and large databases. We studied the contribution of researchers to public administration and the characteristics and interdisciplinary features of the members of the editorial board through bibliometric analysis (Ni et al., 2017).

The study successfully informs about the state of research and practice in general reform and reform of the system of government of the state of Kazakhstan and is the initial step for future research. The discussion of the results of our research included four parts. In the first part, we defined our research strategy and presented the information. In the second part, we explained the obtained results. In the third section, we define directions for future research. This bibliometric analysis provides a comprehensive overview of our research area and determines the direction of future research. Our study emphasizes the importance of institutional factors in the study of Kazakhstan's public administration practice, and it is assumed that our study will be useful for application in the academic environment and practice.

Results and discussion

Our research strategy covered the years 1991 to 2023 in Scopus (peer-reviewed scientific literature database). The year 2024 was omitted due to incomplete data. Figure 1 shows the filtering of data by topic and keyword. Articles in languages other than English were excluded. Here, review articles were excluded, and only original studies were considered. In Figure 1, our research strategy started with keyword selection, and as a result, 430 publications were identified. Then, 296 publications were selected by filtering out licensed academic journals, 260 articles, and conference proceedings were selected as the main strategy for our research on publications in English, and the remaining 151 were ultimately selected as a result of the selection of articles only. The publication was analyzed.
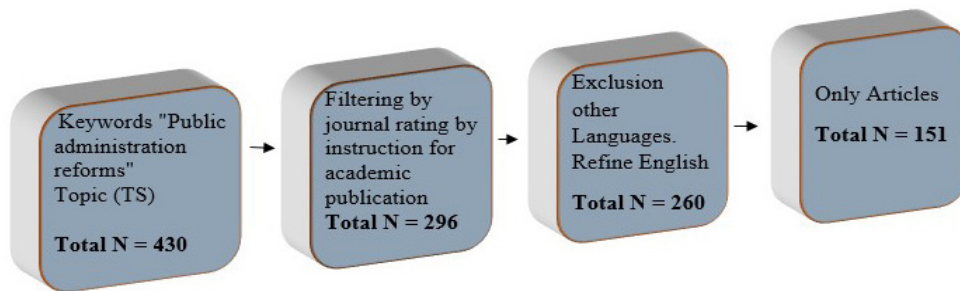
Figure 1 – Keyword search on Scopus
Note – Compiled by authors based on VOSviewer

Results obtained. Our study analyzed 151 articles from 71 academic journals published between 1991 and 2023. The results of the analysis show an increase in research. The majority of studies were in social sciences 59.6%, humanities 4.8%, economics and finance 9.7%, and business, management and accounting 25.9%. However, the results of the studies are published in local publications that are not indexed internationally. Figure 2 shows a slight increase in the number of articles as a result of research from 2000 to 2009, and after 2011, the growth rate increased. The peak of the research occurred in 2011 and 2015. This has led to an increase in public administration challenges and researchers' interest in understanding this area.

We created Table 1 according to the top rating of the academic journals. As shown in Table 1, the main sources of reform on the management of the state system were the original three international publications. Our study identified 11 publications; they were the first in terms of ranking and number of articles in 71 academic journals. The three most cited publications on the topic of public administration reform were identified and were cited in the "Australian Journal Of Public Administration" magazine, with 207 citations. It was followed by "International Review Of Administrative Sciences" with 176 citations and "Public Administration And Development" with 106 citations.
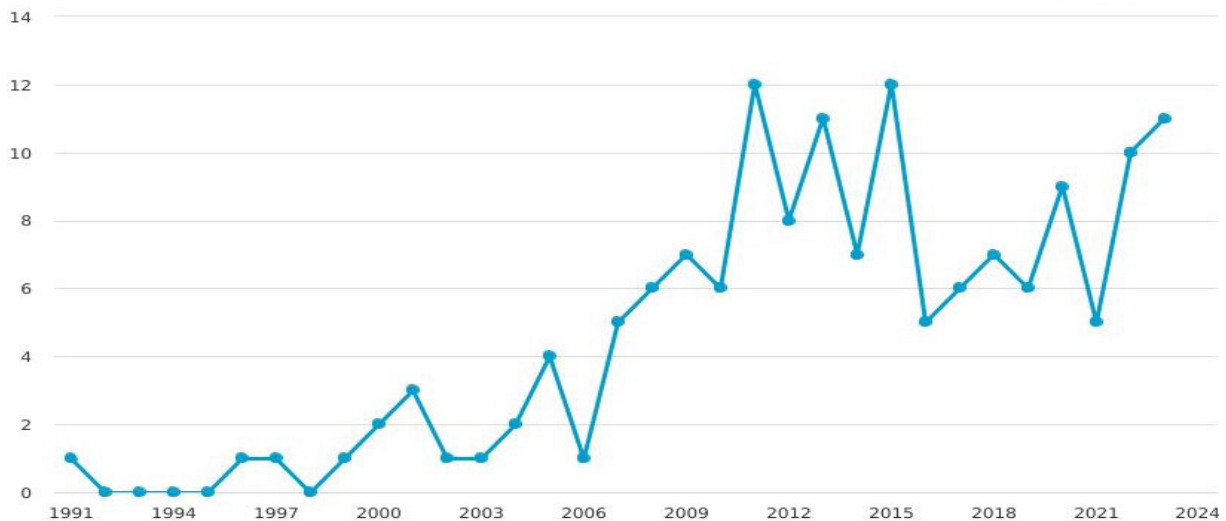
Figure 2 – Number of articles published on public administration reforms for 1991-2023
Note – Compiled by authors based on VOSviewer

Table 1 – The best cited publications on public administration reform

№	Sources	Documents	Quotes
1	International Journal Of Public Administration	18	86
2	Transylvanian Review Of Administrative Sciences	13	73
3	Public Administration And Development	8	106
4	International Review Of Administrative Sciences	6	176
5	Mediterranean Journal Of Social Sciences	5	23
6	Administrative Si Management Public	4	24
7	Administration And Society	4	18
8	Australian Journal Of Public Administration	4	207
9	Central European Public Administration Review	4	11
10	Croatian And Comparative Public Administration	4	1
11	Public Policy And Administration	3	10
Note – Compiled by authors based on VOSviewer			

To clarify the direction of the work, four publications were taken as objects of study, which are among the best in the field of management of the state administrative system. This was determined by the Scimago Journal Rankings (SJR), an analytical platform that publishes high rankings and citation statistics. Table 2 shows the top International Review of Administrative Sciences journal in 2022 in terms of the SJR platform, average citation score of recently published articles (Cite Score), and article citation rate based on publications (SNIP).

Table 2 – Rating of publications according to the Scopus database for 2022 on state system management

№	Source	SJR	Cite Score	SNIP	Number of citations	References not cited
1	International Review Of Administrative Sciences	0.993	5.4	1.649	2761	11.76%
2	International Journal Of Public Administration	0.691	4.4	1.186	3229	26.72%
3	Public Administration And Development	0.535	3	0.912	1381	20%
4	Transylvanian Review Of Administrative Sciences	0.279	1.5	0.487	400	41.18%
Note – compiled by authors based on VOSviewer						

More or less articles were published in the direction of public administration and reform, most of them focused on regional research. In Table 3, Romania, the United States, the Czech Republic, and Italy are the leaders in our field of research. The high productivity of the work of researchers was influenced by citations. In addition, we have established close international cooperation in our research.

Table 3 – Countries with high efficiency citations on government system management

№	Country	Documents	Citations	Total link strength
1	Romania	18	73	6
2	USA	18	188	12
3	Czech Republic	10	79	5
4	Italy	10	90	8

№	Country	Documents	Citations	Total link strength
5	United Kingdom	8	314	13
6	Australia	7	167	9
7	Serbia	6	6	2
8	Canada	5	108	9
9	China	5	54	5
10	Kazakhstan	5	36	2
Note – compiled by authors based on VOSviewer				

Keywords are important in the full study of a particular topic in the direction of research. As a result of individual analysis of the articles, articles containing references were identified. Table 4 lists the most cited papers by Torres. (2004) and other authors. In his studies on the trajectories of government system management reforms in European countries, he received the most (97) citations.

Featherstone. (2015), the study of the reform of the management of the state administrative system before and during the debt crisis in Greece ranked second with 89 citations. Meyer-Sahling. (2009) He received a critical review of his research in East Central Europe and received 77 citations. The top 10 articles cited overall covered two main themes in public administration and reform.

Table 4 – The 10 most cited articles of reforms in the direction of managing the administrative system of the state

№	Author/Year	Title	Quote	Citations
1	Lourdes Torres (2004)	Trajectories in public administration reforms in European Continental countries	97	64
2	Kevin Featherstone (2015)	External conditionality and the debt crisis: the 'Troika' and public administration reform in Greece	89	51
3	Jan-Hinrik Meyer-Sahling (2009)	Varieties of legacies: A critical review of legacy explanations of public administration reform in East Central Europe	77	64
4	Jan-Hinrik Meyer-Sahling (2011)	Differential legacy effects: Three propositions on the impact of administrative traditions on public administration reform in Europe east and west	66	45
5	Chris Eichbaum et al. (2007)	Ministerial advisers and the politics of policy-making: Bureaucratic permanence and popular control	58	36
6	Grigore Pop-Eleches (2007)	Between historical legacies and the promise of western integration: Democratic conditionality after communism	57	25
7	Amandine Crespy et al. (2019)	What "Brussels" means by structural reforms: empty signifier or constructive ambiguity?	55	53
8	Mary Lee Rhodes et al. (2012)	Current state of public sector performance management in seven selected countries	52	107
9	Eran Vigoda-Gadot et al. (2005)	Managerial and public sector innovation: promises and realities in globalized public administration	46	73
10	Maria Katsonis et al. (2015)	Digital Government: A Primer and Professional Perspectives	45	46
Note – compiled by authors based on VOSviewer				

In our search, 9 authors with at least two articles and two citations and references were identified. Table 5 contains the five authors who have carried out the most related studies in our research area. David Spacek, a researcher at Masaryk University in the Czech Republic, was the most influential author, with 48 citations and 107 citations with six articles, followed by Jan-Hinrik

Meyer-Sahling, with 184 citations with three articles; and Mark Turner, with 49 citations and 149 citations with three articles. In our analysis, the researcher of the Academy of Public Administration Bokaev Bauyrzhan, took ninth place on the list, with two articles on the reform of the public service system. In one of his works, Kazakh researcher Bokayev et al, (2023) revealed the prospects of public service reform for the creation of New Kazakhstan.

Table 5 – 9 Articles with the most links to public administration reform

№	Author	Documents	Quote	Citations
1	David Spacek	6	48	107
2	Jan-Hinrik Meyer-Sahling	3	184	163
3	Mark Turner	3	49	149
4	Kristina Muhhina	3	35	228
5	Dan Sorin Sandor	3	23	61
6	Lourdes Torres	2	122	110
7	Juraj Nemec	2	28	74
8	Tudorel Andrei	2	11	41
9	Baurzhan Bokayev	2	1	66
Note – compiled by authors based on VOSviewer				

Five out of the 151 articles in our research direction were contributed by Kazakhstani researchers. As shown in Table 6, the conclusions of four Kazakhstani authors were related to the reform of the administrative system of the state. Two articles by Baurzhan Bokayev were published in the "Innovation Journal". The first research of the author is that in the 30-year history of Kazakhstan development, despite the measures taken during the reform of the public service, it was not possible to achieve significant changes in the country. In particular, low qualifications and low salaries for government employees seem to be the main problems of the country. The second study by Bokayev et al. (2023) involved a comparative study of the application of reforms in the recruitment of highly qualified civil servants in the experience of Kazakhstan and Singapore. In addition, Baimenov et al. (2019) considered the implementation of reforms in the field of Human Resource Management and anti-corruption in developing countries.

The researcher's article was published in Public Administration Review, one of the most highly cited and respected journals in Q1. Studying the third author, Buribayev et al. (2015) focused on the study of public administration reform in the social sphere and the formation of recommendations for further improvement. Assel Beisenova, a researcher at the Academy of Public Administration under the President of the Republic of Kazakhstan, devoted his article to the functional analysis of public administration reforms carried out in Kazakhstan. The works of Kazakhstani researchers are published in the best publications with 56 citations and 116 links.

In Figure 3, the frequency of association of keywords found in articles on public administration reform was mapped based on the VOSviewer program. The most frequent words are as follows: public administration reforms, new public administration, public service, and administrative reforms. This picture provided an opportunity to see the tendency toward the formation of words. The latest articles are highlighted in yellow, indicating that new research is devoted to the topics of Kazakhstan, transparency, citizen participation, and structural reforms. In this way, the articles published in recent years, as a result of the reform of public service in Kazakhstan, did not cover the transparency of local executive bodies and did not cover the obligation of local authorities to report on the participation of citizens in decision-making.

Table 6 – The best works of Kazakhstani authors on the reform of the administrative management system of the state

№	Author/Year	Title	Quote	Citations
1	Bokayev et al., (2023)	Reforming the Civil Service System in Kazakhstan: Three Innovative Solutions and Priorities	1	15
		Building Innovative Capacity of Public Servants: The Case of Kazakhstan	0	51
2	Baimenov et al., (2019)	Governance in the Post-Soviet Era: Challenges and Opportunities	18	27
3	Buribayev et al., (2015)	Evaluation of the reform efficiency in public social sector management of the republic of Kazakhstan	17	21
4	Beisenova, (2015)	Functional analysis: Public sector reform in Kazakhstan	24	2
Note – compiled by authors based on VOSviewer				
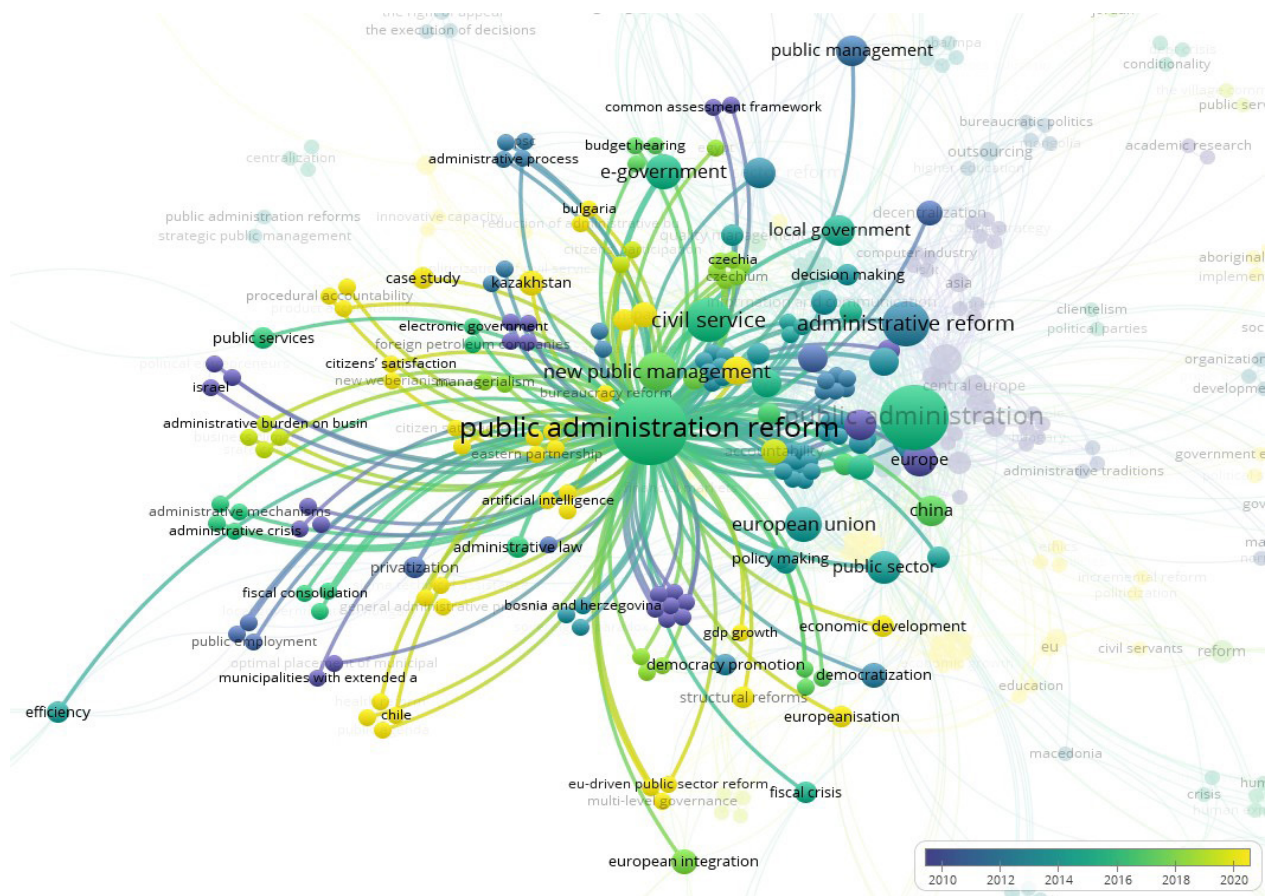
Figure 3 – Joint Keywords
Note – compiled by authors based on VOSviewer

Among the key words, public administration reforms have been used several times in the last ten years in Kazakhstan. Figure 4 is associated with key words such as Kazakhstan, public administration reforms, e-government, innovative activity, survey, and transparency. The results of reforms carried out in recent years show that Kazakhstan intends to optimize its state apparatus and mod- ernize its state management system through the development of e-government. However, Figure 4 shows that articles related to public administration reforms in Kazakhstan were published late, as the word "Kazakhstan" highlighted in yellow is close to 2019-2020. As a result of this research direction, Kazakhstan researchers became more interested in the study in the 2020s.
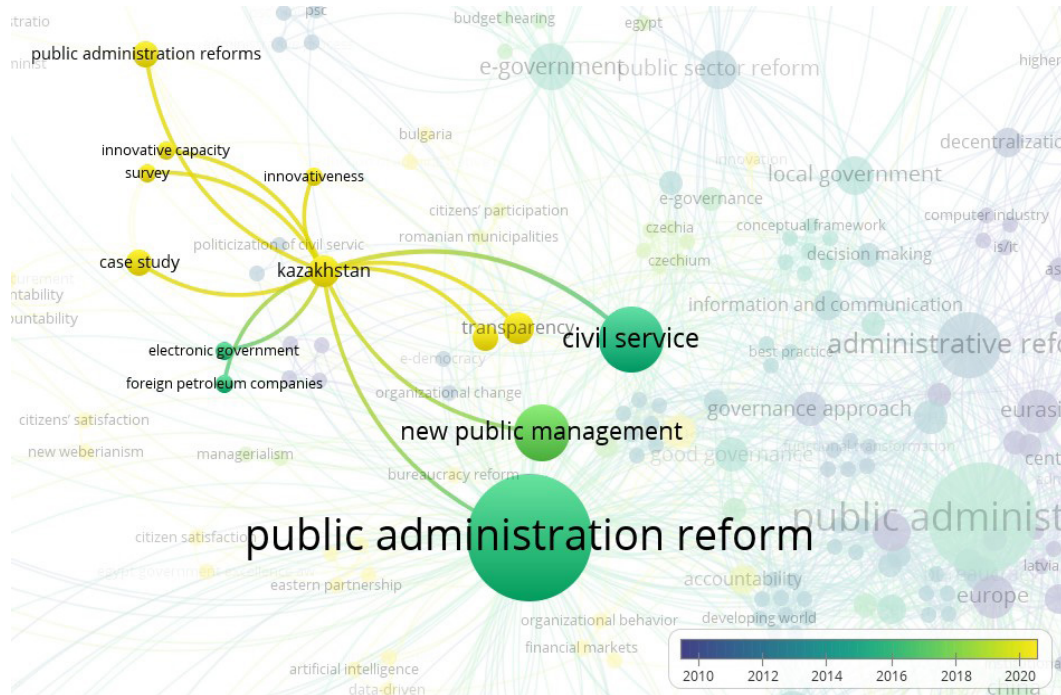
Figure 4 – Connection of common keywords with Kazakhstan
Note – compiled by authors based on VOSviewer

In Figure 5, the USA, Great Britain, and Italy are the leading countries in the published articles on public administration reform, but these studies covered the initial stages. The latest articles were published in Kazakhstan, Ukraine, Germany, and Indonesia. The best studies for these countries are based on the experience of Great Britain and the United States.

Figure 5 – Country contacts on public administration reform
Note – compiled by authors based on VOSviewer

Future research directions. Figure 6 shows the increase in publications on the public administrative management system, which is an area of research that is increasing in importance for the academic environment and practice. As developing countries become more and more involved in the global economy, understanding of management problems and promising development opportunities in the state system has become more and more important. The results of the bibliometric analysis identified several future research directions for public administration reforms, digital government transparency, accountability and bureaucracy, artificial intelligence and behavioral policy.

Figure 6 – Significant topics over the past ten years
Note – compiled by authors based on VOSviewer

Limitations. The limitations of this study may have resulted in a particular reliance on data collection in the Scopus database. A bibliometric analysis using the Scopus database may not fully cover all studies in this area. Most of the articles on public administration reform in Kazakhstan are published in non-peer-reviewed international publications. The fact that scientists ' research is often published in local publications limits the entry of world-class researchers into critical analysis.

Conclusion

Bibliometric – statistical methods for researching and measuring bibliographic data. This method is able to objectively describe the characteristics of the research results and solve subjective deviations.

Activity and quality measures of study results were used for 32-year publications. In this study, more extensive Imperial analyses were performed than in previous studies (Yu, 2022).

Our article was the first analysis of research related to our research direction, focusing on the scientific and academic environment of Kazakhstan. To effectively solve the research problem, bibliometric analysis was carried out for three purposes. The evaluation of Public Administration literature was studied. The main editions have been identified. The citations that show the relationship between the most cited publications were analyzed (Ropret & Aristovnik, 2019)

Czech researcher David Spacek, with articles on public administration reform, and Estonian Kristina Muhhina were identified as the most cited

authors. In our search, Baurzhan Bokayev from Kazakhstan, who has at least two articles, entered the ninth list of the most cited authors whose research on the consequences of the reforms carried out in the creation of New Kazakhstan. Alihan Baimenov, a public figure in Kazakhstan, has published his work on reform in the world's most prestigious Q1 Public Administration Review. The Masaryk University of the Czech Republic is the institution that has published the most articles among researchers, and the Academy of Public Administration of the Republic of Kazakhstan is in ninth place. The number of articles in our research area, including the research of A. Baimenov, E. Buribayev, A. Beisenova, and B. Bokaev from Kazakhstan have added to the work of researchers in this field. However, the vast majority of articles in this area in our country are published in journals that are not indexed by international platforms. This alienates the relationship between public administration research and other disciplines. Most active institutions come from the US and UK, indicating their dominant position over others (Yu, 2022). Most imperial studies of Public Administration are conducted in Western countries, especially in English–American countries. Asian countries still point to a lack of studies exploring many possible models for public administration (Pradana et al., 2022).

The results of bibliometric analysis required the improvement of several areas of research. In particular, the development of English-language curricula in a number of educational institutions outside English-speaking countries. Require teachers to publish their research in high-level international journals where English is the printed language. Formation of strategies that strengthen joint authorial relations between scientists and students in the field of public administration. In most cases, since government data is kept secret, scientists are not part of the world of government agencies but receive little data. This limits the possibilities of research in the field of Public Administration. To this end, scientists can improve the results of the study by cooperating with government officials. The successful implementation of reforms for the growth and prosperity of our country requires the publication and analysis of Kazakh researchers in internationally indexed publications. This requires the support of the country's authorities. Although advanced methods for accessing developed countries for public administration are being introduced in our country, there is a lack of publications in scientific and international academic publications, so there is a need to address this issue.

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ENHANCING THE PROFESSIONALISM OF CIVIL SERVANTS: THE EXPERIENCE OF THE OECD COUNTRIES

Professionalization of official activities is an important link in the process of strengthening the public service and increasing customer focus in relations between the public and private sectors. Time dictates higher demands on the professional and personal qualities of managers and ordinary employees of government agencies. Communication skills, flexibility in decision making, and analytical skills come to the fore. The aim of this article is to study the experience of OECD countries in this area, the main trends in the training and retraining of officials, with the development of recommendations for improving approaches to the professionalization of the state apparatus in Kazakhstan. The study examines and summarizes cases from countries such as the UK, USA, Canada, Japan, France, Lithuania, and Australia. In addition to the educational component, the policy of civil servants professionalization within the OECD countries is based on the meritocracy principles, gender equality, and continuous improvement of skills. Overall, the core principles for improving public service in OECD countries are professional, strategic and innovative. The paper concludes with recommendations aimed at advancing the professionalization of Kazakhstan's state apparatus, drawing on current practices and lessons learned from international best practices.

Key words: professionalization, training, retraining, government apparatus, Kazakhstan, OECD.

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Мемлекеттік қызметшілердің қызметін кәсібилендіруді арттыру: ЭЫДҰ елдерінің тәжірибесі

Ресми қызметті кәсібилендіру мемлекеттік қызметті дамыту процесінің маңызды элементі болып табылады, мемлекет пен қоғам арасындағы қарым-қатынаста тұтынушы назарын қамтамасыз етеді. Қазіргі уақытта мемлекеттік органдардың басшылары мен қызметкерлеріне қойылатын талаптар күшейе түсуде. Қарым-қатынас дағдылары, аналитикалық қабілеттер және шешім қабылдауда икемділік бірінші кезекке шығуда. Осы мақаланың мақсаты – ЭЫДҰ елдерінің осы бағыттағы тәжірибесін зерттеу, сондай-ақ Қазақстанда мемлекеттік қызметті кәсібилендірудің тиімді жолдарын ұсыну үшін лауазымды тұлғаларды даярлау мен қайта даярлаудың негізгі үрдістерін талдау. Зерттеу Ұлыбритания, АҚШ, Канада, Жапония, Франция, Литва және Австралия сияқты елдердің жағдайларын қарастырып, қорытындылар жасайды. ЭЫДҰ елдерінде мемлекеттік қызметкерлерді кәсібилендіру саясаты меритократия, гендерлік теңдік және дағдыларды үздіксіз жетілдіру қағидаттарына негізделеді. Мына елдерде мемлекеттік қызметті жетілдірудің басты қағидаттары кәсібилік, стратегиялық бағыт пен инновациялар болып табылады. Мақала соңында шет елдердің тәжірибесіне сүйене отырып, Қазақстанда мемлекеттік аппаратты кәсібилендіруді дамытуға қатысты ұсыныстар беріледі.

Түйін сөздер: кәсібилендіру, оқыту, қайта даярлау, мемлекеттік аппарат, Қазақстан, ЭЫДҰ.

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Повышение профессионализации деятельности государственных служащих: опыт стран ОЭСР

Профессионализация служебной деятельности является важным элементом процесса развития государственной службы, обеспечения клиентоориентированности во взаимоотношениях между государством и обществом. Время предъявляет возрастающие требования к профессиональным навыкам и личностным качествам менеджеров и сотрудников государственных органов. На первый план выходят навыки коммуникации, аналитические способности, гибкость в принятии решений. Целью данной статьи является исследование опыта стран ОЭСР в изучаемом вопросе, анализ ключевых тенденций подготовки и переподготовки должностных лиц, с выработкой рекомендаций по совершенствованию подходов к профессионализации государственной службы в Республике Казахстан. Исследование рассматривает и обобщает кейсы таких стран, как Великобритания, США, Канада, Япония, Франция, Литва, Австралия. Помимо образовательного компонента, политика профессионализации государственных служащих в странах ОЭСР базируется на принципах меритократии, гендерного равенства, постоянного совершенствования навыков. В целом, ключевыми принципами совершенствования государственной службы в странах ОЭСР являются профессиональное, стратегическое и инновационное направления. В завершении статьи даются рекомендации по развитию института профессионализации государственного аппарата в Республике Казахстан, с учетом имеющейся практики и передового опыта зарубежных стран.

Ключевые слова: профессионализация, обучение, переподготовка, государственный аппарат, Казахстан, ОЭСР.

Introduction

The development and training of skilled managers and the strengthening of senior civil service ranks are top priorities for governments worldwide. In Kazakhstan, building a professional state apparatus is a key strategic goal outlined in the "Kazakhstan-2050" Strategy. At this stage of development, the civil service needs professionals who can effectively learn, apply, and creatively use their knowledge. Beyond traditional "hard" and "soft" skills, there is a need for a broader set of competencies, often referred to as "essential skills," necessary for work, learning, and life. These essential skills are applicable across various sectors and at different levels of complexity in the workplace.

The experience of OECD member countries is strategically important for the Government of Kazakhstan, especially in enhancing industrial competitiveness and combating corruption (OECD, n.d.-a). This study focuses on the professional training of civil servants, aiming to analyze the approaches taken by OECD countries in managing the professionalization of their state apparatus.

The primary aim of this paper is to develop recommendations for improving Kazakhstan's approach to the professionalization of its civil service. The practical significance of this study lies in offering an objective evaluation of the reforms implemented in Kazakhstan, highlighting potential areas for future progress, and suggesting specific interventions crucial for integrating the professionalization of the state apparatus into the functioning of government bodies.

Literature review

The main functions of the civil service are administrative and service. Simultaneously, the civil service is considered as a professional activity that ensures the implementation of the powers of state bodies, and therefore is of a political nature. In a broad sense, the activities of civil servants are based on classical bureaucracy, which in modern conditions is undergoing changes and professionalizing. The process of bureaucratic professionalization is supported and developed within the government by increasing the education level of employees, acquiring new experience in modern realities. Along with this, the incentives for improving competencies are the desire to remain competitive in the labor market (Mikkelsen et al., 2022). The very concept of pro-

fessionalization faces the paradox of the subjectivity of its perception. Since the competencies of public sector employees inevitably increase, the demands on civil servants from their main clients – citizens – also increase. In this regard, professionalization of public service becomes extremely important, taking into account the psychological, or subjective measurement of the level of competencies (Cigler, 2018). In the existing international literature, the concept of professionalization of the activities of civil servants is closely related to the development of specific professional competencies. One of the important competencies of civil servants is leadership skills. At the same time, a leader must have three types of competencies, including intellectual, managerial and emotional (Ayu & AB, 2019). In the European Union, special attention is paid to the ability of public organizations to increase the potential of their human resources, which is achieved through the concept of lifelong learning. At the same time, in the issue of increasing the potential of civil servants, not only professional, but also emotional competencies are important (Borisova, 2015). In line with the sustainable development agenda, there is an emphasis on adopting strategies focused on sustainable, "green" development and enhancing public services within the public sector. To achieve this goal, serious changes are required in the organizational culture, way of thinking and actions of civil servants (Grigorescu et al., 2023). While widely studied skills of civil servants, such as flexibility, creativity, and proactivity, are undoubtedly crucial, more traditional competencies, like analytical skills, also warrant deeper exploration by the academic community (Kruyen & Van Genugten, 2020). In modern public service, more and more attention is paid to data-driven decision-making. This requires a number of competencies that can be called "hybrid", combining traditional and innovative skills. Such competencies include critical thinking, literacy, subject matter knowledge, teamwork, interaction with stakeholders and others (Dingelstad et al., 2022). It is noted that online dialogue with the population, as part of the daily work of a civil servant, requires the development of appropriate communication skills, including the ability to manage conflict situations (Lektorova et al., 2021).

In any case, the need for a particular competence should be interconnected with practical necessity (Pavlova, 2018). Professionalization of the civil service system of Kazakhstan is based on the principles of meritocracy, effectiveness, accountability and transparency. However, researchers note the need for deeper administrative reforms, based on the need to adapt the state apparatus to new realities and strategic objectives of the state (Chernousova, 2017). Studying Kazakhstan's models of civil servant competencies in comparison with the experience of OECD countries, Sergaliyeva et al. (2021) point out the insufficient use of information and communication technologies. The authors also emphasize the importance of highly professional personnel in the formation of a competitive economy, the ability of the state to successfully implement its policies. Among the primary qualities of civil servants, the ability to think critically, awareness and motivation are noted. The importance of mastering digital competencies by civil servants is due to the rapid transformation in this area, advances in artificial intelligence, cloud computing, and big data. Despite the threat that digitalization processes pose for some professions, in the field of civil service, these changes can improve the efficiency of public sector organizations (Casalino et al., 2020). With the continuing modernization of the civil service system in Kazakhstan, comprising the adoption of a competency-based approach and project management instruments, it is anticipated that there will be positive developments in the professionalization of the state apparatus. Professionalization of the civil service is a critical element for the effective functioning of the state apparatus and the successful implementation of state tasks. In modern conditions, increased attention is paid to the development of both traditional and innovative competencies, which requires constant training and adaptation to new challenges. Kazakhstan, following international experience and taking into consideration the peculiarities of its civil service, is actively introducing the principles of meritocracy, accountability and digitalization, which, in turn, contributes to increasing the professionalism of civil servants. However, to achieve sustainable results, further reforms and continuous improvement of skills and competencies are needed to meet the demands of the times and the expectations of citizens.

Methodology

This article employs a methodology that includes systems analysis, comparative analysis, and adaptation as an approach to studying international experiences in the professionalization of civil servants. The comparative analysis examines factors influencing the professionalization of public service in OECD countries and compares them to similar processes in Kazakhstan. To achieve this, a content analysis of key publications, official documents,

and texts related to professionalization policies in public service was conducted. This approach identified both structural and functional characteristics of mechanisms for professional development, recruitment processes, career progression, and performance evaluation of civil servants across different countries.

Thus, the methodology used in this article not only enables a thorough comparison but also facilitates the adaptation of successful practices from OECD countries to the specific context of Kazakhstan's civil service. This makes the research both analytical and practically oriented.

Results and discussion

OECD is an international economic organization of developed countries that includes 38 member states. These are mainly countries of the European Union, as well as **Japan, Canada, Australia, South Korea, the United States**, and a number of Latin American countries. The experience of these countries in the professionalization of official activities is valuable for the Republic of Kazakhstan, given the close cooperation of the Kazakh government with the OECD on issues such as **increasing industry competitiveness, combating corruption**, and others. In its official application for accession to the OECD, Kazakhstan outlined a strategic direction for incorporating the organization's best practices and standards into the National Development Plan through 2025 (Decree of the President of Kazakhstan, 2018).

In the context of human capital development, an analysis of OECD **documents** shows that a key role is assigned to education as a **conductor** of the development of the necessary skills and abilities that help **applicants** find their place in the global labor market (Panagiotopoulos & Karanikola, 2018). The continental European countries, which make up the majority of the OECD, adhere to the traditions of the rule of law as an element of national culture in the professionalization of public sector employees. These traditions are quite closed and resistant to external pressure. Their main principle is professional development based on meritocracy. Other OECD heavyweights, such as the United States, Great Britain, and the countries of the British Commonwealth, rely on Anglo-Saxon principles of public interest in this matter. They are characterized by the maximum reduction of differences between the public and private sectors in terms of human resource management.

The OECD, as a recommendatory platform for member countries, developed and released the Recommendations on Civil Service Leadership and Capability in 2019. This document presents 14 principles of civil service in accordance with three areas, one of which is qualified and effective civil servants. The key points here are the principles of:

- continuous improvement of skills and competencies;
- attracting and retaining qualified personnel;
- selecting and promoting of candidates based on merit;
- instilling a culture of learning in the civil service;
- assessing initiative, talent and productivity.

Furthermore, the recommendations include a section addressing the development of a culture and leadership grounded in civil service values, along with the designing of adaptable and responsive employment systems (OECD, 2019).

The key principles mentioned above can be found in the professional performance management policies of OECD countries. OECD experts identify three stages of development that have a significant impact on both state development and the effectiveness of state interaction with citizens: professional – strategic – innovative (Table 1).

Among the OECD documents that served as the foundation for the development of the aforementioned documents are the Guidelines for Enhancing the Quality of State Regulation, the Guidelines for Managing Conflicts of Interest in the Civil Service, the Guidelines for Regulatory Management, and the Guidelines for Gender Equality in Education (OECD, 2024).

Thus, in Australia, the Gender Equality Strategy (2016-2019) provided for a set of measures to eliminate the gender imbalance in the civil service system at all levels and in all departments. These measures provide a new approach to ensuring gender equality in the Australian public service, which combines cultural change, practical initiatives, creating a favorable atmosphere in the workplace, as well as a number of innovative practices in employment. For example, the widespread use of flexible work schedules by employees of both sexes (OECD, n.d.-b).

The issue of gender is highly relevant to Kazakhstan's civil service. The existing disparities in gender representation among Kazakhstani civil servants are not only linked to cultural factors and entrenched societal stereotypes but also to the absence of regulatory incentives aimed at promoting women to leadership positions. The established dynamics within the civil service often demand after-hours work and participation in informal meetings outside the workplace (Yessimova & Zhunussova, 2022). These requirements are not always feasible for women, who frequently bear additional responsibilities for household duties and childcare.

Table 1 – Classification of the Phases in the Development of Public Service

Characteristics	Professional	Strategic	Innovative
Qualities required of civil servants	Independent; Value-driven; Ethical.	Result-oriented; Committed to facts; Future-oriented; Proactive; Networking ability.	Interactive; Data-driven; Citizen-centric; Curiosity-driven; Able to sense the audience; Able to break the rules.
Characteristics of civil service	Merit-based; Integrating soft skills, ethics and talent management; Strikes a balance between specialized and general knowledge jobs	Flexible and responsive; Attractive to professionals; Planning and effectively distributing competence potential; Future-oriented and receptive.	Organizational culture; Engagement; Autonomy; Mobility; Diversity; Commitment to life-long learning and professional development
Qualities of managers and senior civil servants	Experienced policy makers and efficient workflow managers	Transformational leaders managing changes	Collaborative and adaptable managers
Note – compiled by the authors from OECD data			

The experience of OECD countries in introducing a separate corps of senior civil servants is interesting. A similar institution has been introduced in 30 member states of the international organization (Lobanov, 2010). Thus, in Great Britain, there is an institution of the Senior Civil Service, which includes civil servants, starting from a certain level (rank), who are a conductor between politicians and ordinary civil servants (United Kingdom Parliament). This experience is also being adopted in a number of post-Soviet countries – Corps "A" in the Republic of Kazakhstan can be called an alternative to this institution.

This approach is also being adopted by several post-Soviet countries, and the "A" Corps in the Republic of Kazakhstan can be considered an alternative to this institution. However, there are notable differences.

Selection and career advancement: In the United Kingdom and most European countries, appointments to senior positions are typically made through open competitions and are based on performance outcomes (Dargie & Locke, 1999: 186). In contrast, in Kazakhstan, this process tends to be more centralized and less transparent.

Political neutrality: In the UK, senior civil servants are required to remain politically neutral and are accountable solely to the government. In Kazakhstan, however, political factors may exert more influence on the civil service (Dargie & Locke, 1999: 181).

In general, the civil service system of Great Britain, as well as in other countries of Anglo-Saxon law, refers to an open model. Firstly, the selection of personnel for the civil service is carried out through an open competition. Secondly, wages and career growth depend on the performance of the civil servant. Significant changes in public administration in Great Britain occurred during Margaret Thatcher's premiership. These reforms were based on the innovative principles of New Public Management, implemented as part of the administrative reforms of the 1980s and 1990s. New Public Management centers on the adaptation of effective business management techniques within the public sector. This approach enabled the public sector to address the inefficiencies inherent in the traditional bureaucratic model of governance. Core components of this new public administration approach, including performance-based strategies, the monitoring of qualitative and quantitative indicators, budget optimization, and the cultivation of an innovative organizational culture, were facilitated by the adoption of economic and strategic business tools.

Simultaneously, the Institute for Government think tank has highlighted in its reports that the lack of a clear definition of civil servants and specification of their duties is one of the obstacles to improving the effectiveness of the UK government. Researchers at this non-profit organisation believe that senior officials, including the Prime Minister, do not

have the necessary powers and time required to lead and manage the civil service.

The Institute for Government identifies several controversial issues within the regulation of the British civil service:

- The absence of a clear definition of the civil service institution, comprising its role, goal, the powers and responsibilities;

- Inconsistent allocation of responsibilities between ministers, senior civil servants in central government, and permanent department secretaries;

- Lack of coordination and alignment between ministries and departments;

- A weak system for monitoring the achievement of key performance indicators and priorities.

- Low level of risk management (Institute for Government, n.d.).

In their opinion, despite several serious reforms in the UK civil service system, they have not resolved the fundamental issue of the legislative and constitutional basis of the civil service, as well as the above-mentioned main problems of public administration.

In recent years, several signs of the incorporation of New Public Management (NPM) principles have emerged within Kazakhstan's civil service, although the full implementation of these principles is still in progress. Key aspects include:

Results-oriented governance: As part of reforms aimed at enhancing governmental efficiency, there has been a growing emphasis on achieving concrete outcomes and performance indicators. The introduction of a performance evaluation system for government bodies marks a significant step in this direction.

Citizen participation: Increasing attention is being paid to involving citizens in the decision-making process through various forms of public engagement, aligning with NPM's principle of creating more open and accountable governance.

Decentralization: Reforms in local self-government and the devolution of powers to local authorities reflect NPM's focus on decentralization, allowing services to be better tailored to the needs of local communities.

Technological innovations: The integration of information technologies into governance processes, including the implementation of e-services and platforms for public interaction, contributes to greater efficiency and transparency.

Despite these advancements, significant challenges remain. These include the need to improve coordination between government agencies, reduce bureaucracy, and enhance accountability among civil servants. Meeting these challenges requires the development of professional skills, mastery of new communication methods, and stronger engagement with civil society.

The effectiveness of civil service and public administration is largely determined by the professionalism of public managers. In this regard, OECD countries pay great attention to the training of future leaders at specialized educational institutions. Examples include the National School of Administration in France, the School of Public Administration in Italy, the Federal Academy of Public Administration in Germany, and others. Lithuania, as a member of the OECD, has adopted a State Program for 2020-2024 aimed at centrally strengthening its corps of public managers in order to enhance the professionalization of its civil service. This initiative, along with other reforms, is part of the Lithuanian government's plans to establish a Higher Civil Service. It is anticipated that the institution of the Higher Civil Service will help reduce the level of politicization in decision-making and improve the overall quality of public administration. One of the notable innovations in the professionalization of civil servants in Lithuania is the government's plans to amend legislation related to public service. These amendments aim to legally enshrine the development of competencies for senior leaders, focusing on enhancing leadership qualities, communication skills, change management, and strategic planning (Statneckytė, 2023).

In the Republic of Kazakhstan, the principles of enhancing civil servant professionalism are defined through training and retraining tools, as outlined in the Law on Public Service (Law of the Republic of Kazakhstan on Public Service, Article 34). Furthermore, there are regulations that stipulate various procedures for the training, retraining, and professional development of civil servants in the "A" and "B" corps. The specialized organization responsible for developing training programs is the Academy of Public Administration. Given the similarities between Kazakhstan's approaches and those of OECD countries in this area, it is prudent to consider both successful experiences and less effective practices from abroad. Specifically, drawing on Lithuania's experience, the specialized organization should incorporate the development of the competencies identified by Statneckytė (2023) into its training programs.

One of the critical criteria for enhancing the professionalization of civil servants is the encouragement of diligent employees and the promotion of career motivation. In the history of the US civil service, the first legal act prescribing the selection of

positions on the basis of merit and examination results, rather than political patronage, was the Pendleton Civil Service Reform Act of 1883 (National Archives, n.d.). Initially covering around 10% of federal employees, the system now encompasses the majority of the federal workforce. These principles were further reinforced by the Civil Service Reform Act of 1978. Today, each US agency has an assessment system developed with the active involvement of employees themselves. Based on these assessments, decisions are made on personnel transfers, training and retraining, and incentives for employees (Salikov, 2017). The Canadian civil service is one of the largest employers, with the total number of people employed in this sector exceeding 350 thousand people. Similar to the American system, the Canadian civil service system has adhered to the principles of meritocracy since about the beginning of the last century, which replaced the originally existing patronage system. One of the major steps towards changing the human resources management procedure in the public sector of Canada was the adoption of the Public Service Modernization Act in 2003 and the updated Public Service Employment Act in 2005, which clearly defined the concept of "merit". This made it possible to select qualified personnel based on their "best fit" with the goals of the organization. Independent monitoring of compliance with these principles is carried out by a specially created organization under the government – the Public Service Commission of Canada, which, among other things, develops personnel policies, conducts audits of the effectiveness of individual divisions and hired managers (Public Service Commission of Canada, n.d.).

Since gaining independence, Kazakhstan has been building a civil service system where the principles of meritocracy are one of the key aspects. Significant reforms in this area include the legislative establishment of competitive procedures for filling positions in 1999 under the Law on Public Service, as well as the subsequent introduction of the concept of meritocracy, which recognizes the personal merits and achievements of civil servants and promotes them based on their abilities and professional qualifications.

Meritocracy is one of the fundamental principles of the civil service in the Republic of Kazakhstan; however, its practical implementation faces a number of challenges. In reality, there is a lack of regulatory mechanisms to effectively enforce the principle of meritocracy during staff appointments and promotions. A valuable lesson for Kazakhstan from North American countries could be the development of a principle for evaluating candidates' qualities through peer assessments, as well as clearly defining which personal merits serve as a basis for the advancement of civil servants.

One of the most notable examples of successfully implementing civil servant training programs, along with the private sector, is Japan. In the land of the rising sun, a special body was created, which is part of the system of central executive bodies – the National Personnel Authority (Personnel Chamber) (National Personnel Authority, n.d.). The functions of the Personnel Chamber include the formation of personnel policies and improving the professionalism of civil servants. The organization's activities in this area are regulated by special rules (10-3), which provide for classification and distribute responsibilities for on-the-job training. In addition, each ministry in Japan organizes work to improve the skills and professional knowledge of public sector employees.

The Agency for Civil Service Affairs in Kazakhstan can be considered an analogue to Japan's National Personnel Authority (NPA). Adapting best practices from the NPA, such as transparency in competitive procedures, a system of rotation and career advancement, legal protection, and regular evaluation and training of civil servants, could significantly enhance the effectiveness of the civil service in Kazakhstan. These measures would not only improve the professionalism of personnel but also strengthen public trust in the governance system.

The best practices for enhancing the professionalization of civil servants in OECD countries, compared to the existing mechanisms in Kazakhstan, are outlined schematically below:

The analysis conducted highlights several aspects from the OECD experience that are of interest for further enhancing the professionalization of the civil service in the Republic of Kazakhstan (Figure 1). Many of the aforementioned practices from OECD countries are currently being implemented to varying degrees within Kazakhstan's civil service. However, the effectiveness of their implementation may depend on factors such as cultural characteristics, the level of corruption, and financial capabilities. In this context, adopting foreign practices presents a promising yet challenging task, necessitating a balanced approach that takes into account local specifics and the objectives facing public administration.

Gender equality	Senior Sivil Service		Meritocracy	Coordinating Organization for Human Resource Management
Australia	Great Britain	Lithuanua	USA, Canada	Japan
Flexible work schedule Creating a positive work environment	Improvement of the selection system for corps 'A' officials	Training corps 'A' officials in specialized skills (leadership, communication, change management)	Evaluation of candidate qualities by colleagues Defining criteria for personal merits	Improvement of the activities of the authorized body for public service in key areas

Figure 1 – OECD Practices Recommended for Enhancing the Professionalization of Civil Servants in Kazakhstan
Note – compiled by the authors based on an analysis of the experiences of OECD countries

Conclusion

In the context of human capital development, the analysis of OECD textual documents indicates that education plays a key role as a conduit for developing the necessary skills and competencies that help job seekers find their place in the global labor market. The further advancement of the civil service involves ensuring the strategic orientation of the government apparatus, followed by a transition to an innovative framework that is based on forward-looking perspectives, proactive development of digital technologies, the implementation of strategic human resources practices, the cultivation of leadership, and the encouragement of effective performance. The goal of this research was to formulate recommendations for enhancing the professionalization of the civil service in Kazakhstan.

The study revealed that a number of practices from OECD countries could be implemented or re-fined within the context of the Kazakh civil service, focusing on areas such as gender equality, the activities of the senior civil service institute, principles of meritocracy, and the coordination of human resources management within the civil service by the authorized government body.

It is worth noting that many of the reforms currently underway in the country are similar to those being implemented in OECD nations. The further development of these reforms, taking into account leading global practices and national characteristics, will facilitate significant progress in this area.

Acknowledgment

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Авторлар туралы мәлімет

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SOCIAL INEQUALITY IN KAZAKHSTAN: PARAMETERS AND INDICATORS

Social inequality has always been and remains one of the key problems of any economic system, to which both society itself and the state as a whole pay attention. In the article, this problem is inextricably linked with such aspects of state economic regulation as taxation, insurance, investment, which requires a special study of all criteria and indicators for the effective provision of social security of the population.

The purpose of the study is to analyze social inequality in Kazakhstan using modern statistical methods such as cluster analysis and ARIMA modeling.

The scientific significance of the study is that it presents new insights to the analysis and modeling of social inequality in Kazakhstan. Practical significance can be observed in the analysis of parameters and dynamics of social inequality, which allows to identify vulnerable groups and focus on improving their social situation.

Cluster analysis is carried out because of data on social and economic characteristics of the population, to identify groups similar in terms of well-being. The ARIMA (Autoregressive Integrated Moving Average) method is used to model the dynamics of social inequality.

The results of the study allowed us to identify the main parameters of social inequality in Kazakhstan. It was found that income inequality remains one of the most significant factors affecting the welfare of the population. Also, significant differences are observed in the level of education, access to health care and quality of housing conditions.

The study represents an important contribution to the understanding of social inequality in Kazakhstan, its parameters, and dynamics, as it allows us to assess the scale and structure of social inequality in Kazakhstan. Identify the most vulnerable groups of the population and identify the causes of their vulnerability. To develop forecasts for the development of social inequality and assess possible risks.

Key words: social inequality, poverty, employment, unemployment.

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Қазақстандағы әлеуметтік теңсіздік: параметрлері мен индикаторлары

Әлеуметтік теңсіздік әрқашан қоғамның өзі де, жалпы мемлекет те назар аударатын кез келген экономикалық жүйелердің негізгі проблемаларының бірі болды және болып қала береді. Мақалада бұл проблема салық салу, сақтандыру, инвестициялар сияқты мемлекеттік экономикалық реттеудің аспектілерімен тығыз байланысты, бұл халықтың әлеуметтік қорғалуын тиімді қамтамасыз ету үшін барлық критерийлер мен көрсеткіштерді арнайы зерттеуді қажет етеді.

Зерттеудің мақсаты ARIMA кластерлік талдау және модельдеу сияқты заманауи статистикалық әдістерді пайдалана отырып, Қазақстандағы әлеуметтік теңсіздікті талдау болып табылады.

Зерттеудің ғылыми маңыздылығы-ол Қазақстандағы әлеуметтік теңсіздікті талдау мен модельдеуге жаңа түсініктер береді. Практикалық маңыздылығын халықтың осал топтарын анықтауға және олардың әлеуметтік жағдайын жақсартуға күш салуға мүмкіндік беретін әлеуметтік теңсіздіктің параметрлері мен динамикасын талдауда байқауға болады.

Кластерлік талдау халықтың әлеуметтік және экономикалық сипаттамалары негізінде, әл-ауқат деңгейіне ұқсас топтарды анықтау үшін жүргізілді. Әлеуметтік теңсіздік динамикасын модельдеу үшін Arima (Autoregressive Integrated Moving Average) әдісі қолданылады.

Зерттеу нәтижелері Қазақстандағы әлеуметтік теңсіздіктің негізгі параметрлерін анықтауға мүмкіндік берді. Табыс теңсіздігі халықтың әл-ауқатына әсер ететін маңызды факторлардың бірі болып қала беретіні анықталды. Сондай-ақ, білім беру деңгейінде, медициналық көмекке қол

Зерттеу Қазақстандағы әлеуметтік теңсіздікті, оның параметрлері мен динамикасын түсінуге маңызды үлес болып табылады, өйткені ол Қазақстандағы әлеуметтік теңсіздіктің ауқымы мен құрылымын бағалауға мүмкіндік береді, халықтың ең осал топтарын бөліп көрсету және олардың осалдығының себептерін анықтау, әлеуметтік теңсіздіктің даму болжамдарын әзірлеу және ықтимал тәуекелдерді бағалау.

Түйін сөздер: әлеуметтік теңсіздік, кедейлік, жұмыспен қамту, жұмыссыздық

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Социальное неравенство в Казахстане:
параметры и индикаторы

Социальное неравенство всегда было и остается одной из ключевых проблем любых экономических систем, на которую обращают внимание как само общество, так и государство в целом. В статье данная проблема неразрывно связана с такими аспектами государственного экономического регулирования как налогообложение, страхование, инвестиции, что требует специального изучения всех критериев и показателей для эффективного обеспечения социальной защищенности населения.

Цель исследования заключается в анализе социального неравенства в Казахстане с использованием современных статистических методов, таких как кластерный анализ и моделирование ARIMA.

Научная значимость исследования заключается в том, что оно представляет новые инсайты к анализу и моделированию социального неравенства в Казахстане. Практическую значимость можно наблюдать в анализе параметров и динамики социального неравенства, которая позволяет выявить уязвимые группы населения и сосредоточить усилия на улучшении их социального положения.

Кластерный анализ проведен на основе данных социальных и экономических характеристиках населения, для выявления групп схожих по уровню благосостояния. Для моделирования динамики социального неравенства используется метод ARIMA (Autoregressive Integrated Moving Average).

Результаты исследования позволили выявить основные параметры социального неравенства в Казахстане. Обнаружено, что неравенство в доходах остается одним из наиболее значимых факторов, влияющих на благосостояние населения. Также существенные различия наблюдаются в уровне образования, доступа к медицинскому обслуживанию и качеству жилищных условий.

Исследование представляет собой важный вклад в понимание социального неравенства в Казахстане, его параметров и динамики, так как она позволяет оценить масштабы и структуру социального неравенства в Казахстане, выделить наиболее уязвимые группы населения и выявить причины их уязвимости, разработать прогнозы развития социального неравенства и оценить возможные риски.

Ключевые слова: социальное неравенство, бедность, занятость, безработица.

Introduction

Today, in the context of the post-COVID development of global economies, the issue of social inequality is acute. Differences in income are one of the fundamental issues in a number of other factors in the growth of social inequality.

However, Stephen Pirken (2018), Professor of Psychology at Harvard University, in his work "Enlightenment Today" noted that globalization has led to an increase in income in most segments of modern society and the population in general has significantly improved its lifestyle. This statement causes a lot of controversy regarding ensuring not social equality, but social justice, as a solution to the problem of balancing social development and its impact on economic growth.

There are many areas of study of this phenomenon, ranging from taxation and a fair distribution of income to the global building of a fair society based on the balance of three pillars: people, business and the planet.

From an economic point of view, the causes of social inequality, first of all, are the unequal attitude to property, the distribution of material wealth (Afanas`ev & Yuzbashev, 2012). This approach manifested itself most clearly under Marxism, when it was the emergence of private property that led to the social stratification of society and the formation of antagonistic classes. It should be noted that the

problem of inequality of access to resources lies in the fact that it is both a cause and a consequence of modern social inequality (Veselovskij, 2017). Thus, in the economic sphere, the problems of social inequality are expressed as follows: an increase in government spending on the production of certain goods or services, a partially unfair distribution of income (not those who actually work and use their physical strength receive, but those who invest more money), respectively, hence the unequal access to resources.

Within the framework of this study, we would like to focus on such an aspect of social inequality as the problem of poverty in the regional aspect. Kazakhstan in the World Bank ratings belongs to countries with lower middle income. This means that according to this method, the poverty line in Kazakhstan, according to the World Bank, is $5.5 per day, which is a little more than 70,000 tenge per month (Jean-François Marteau, 2020). That is, one who earns in Kazakhstan less than 70,000 per month, according to the methods of the World Bank, is already a poor person. According to the official Kazakh methodology, only those who have an income below the subsistence minimum, that is, below 34,302 tenge per month as of 2021, are considered poor (Shaukenova, 2018).

Literature review

Social inequality is based on the structure of society, in which access to common and private goods is distributed unevenly. In the reproduction of such a system, each person, to the extent that depends on his social position, as a rule, participates daily. Improving the well-being of the population based on a gradual increase in real incomes of the population, reducing their excessive differentiation between different categories of the population and proper social security are the strategic goals of social development.

As Zhussupova, A. (2016) notes in her report, the issue of the potential impact of social inequality on the political and socio-economic situation in modern Kazakhstan is becoming extremely important.

Various theoretical aspects of social inequality in Kazakhstan and other countries have been studied by many foreign and domestic scientists.

For this research work, the main definitions and concepts related to social inequality are studied in the textbook Price & Feinman (1995). "Foundations of social inequality", which details five theoretical breakthroughs concerning the changing views on the emergence and institutionalization of inequality by anthropologists and archaeologists. It has been suggested that this key socio-economic process should no longer be seen as a mere product of agricultural origin or high population stress.

The authors of the textbook "Social Inequality: Forms, Causes, and Consequences" Hurst, C., Fitz Gibbon, H., & Nurse, A. (2016) not only consider the specificity, prevalence, and extent of social inequality in the United States in a comparative context to show how inequality arises, how it affects people and what is being done about it, but they reveal in detail the features of the impact of the process of globalization on inequality at the international level and pay increased attention to disability, transgender issues, intersectionality, the experience of Muslims, the Hispanic population and immigration.

The relevance of the topic and the surge of interest in social inequality, which notes the presence of mechanisms that prevent the accumulation of advantages and increase inequality, are also evidenced by the works of many research authors (DiMaggio & Garip, 2012; Muratova et al. 2020; Orazayeva & Kurbanova, 2021), problems past, present, and future social inequalities in advanced industrialized societies, part of social policy has been directed against economic and social inequalities (Grusky, 2019), the problems of young middle-class people being more deserving than their working-class or poor counterparts, who are aware " rules of the game" regarding how institutions work, demonstrating the larger problem of social inequality associated with institutions (Lareau, 2015; Nurmagambetova et al. 2021; Weiß, 2005; Kurbanova et al. 2021). The author of "Injustice: Why social inequality still persists", Dorling, D. (2015) reviews and presents an analysis of contemporary issues and practices underlying inequality and a brief interpretation of the main reasons for the persistence of injustice in rich countries along with possible solutions. In his study, Blackburn, R. M. (2008) considers the questions and concerns of nine important interrelated bases of inequality, and that the zero point of inequality may not be achievable, but the real problem lies in the actual degree of inequality, which can be significantly reduced, as well as identifying the analysis of serious gaps and lack of integration (Goldthorpe, 2010), reviewing empirical evidence on the impact of (a) expanding access to universal child and early childhood education, (b) interrupting schooling for the summer holidays, (c) extending the school day, and (d) increasing the number of years of compulsory schooling (Raudenbush & Eschmann, 2015).

In order to understand in more detail the specifics of the impact of social inequality on where

people live, with whom they communicate and who they choose as friends and partners. From this point of view, the study of Bottero, W. (2007) "Social inequality and interaction" is interesting, which describes in detail the formation of social bonds in the process of social sorting, and tend to be similar to people in social class, race / ethnicity, religion and views.

In practice, studies in the social sciences (Bögenhold, 2001; Kurbanova et al. 2022) can enrich the basic material for lifestyle analysis and research related to the work of Thorstein Veblen, Georg Simmel, and Max Weber.

Methodology

Methodologically, it is imperative to rigorously define social inequality (as well as social equality) as the subject of scientific inquiry.

Social inequality extends beyond mere disparities in income, encompassing variations in various facets of individuals' lives. Conversely, numerous distinctions that individuals and families deem significant do not fall within the purview of social inequality. The delineation of parameters for measuring social inequality has been a subject of deliberation in both scholarly research and media discourse (Rakitskij, 2019).

Embracing scientific investigations that enrich our comprehension of the diverse factors contributing to social inequality is essential. This multifaceted issue impacts people's quality of life in myriad ways (Stiglitz, 2012).

Authors B. Rakitskij & G. Rakitskaja (2017) advocate for researchers to approach the study of social inequality with a robust theoretical framework, rather than solely relying on empirical observations. They propose conceptualizing social inequality as disparities in social status, which engender differences in quality of life.

According to Rakitskij (2019), social position is a form of individual' life engagement that is consistently replicable within a specific society. It is shaped by a collection of conditions and lifestyles realistically accessible to them, dictating their tangible opportunities, the trajectory of personal growth, and, ultimately, the societal archetype of personality.

Social status can be delineated by a fundamental and sufficient array of attributes, which encompass the following:

1. The position that an individual holds within the social structure, which determines whether they belong to an exploited or exploiting social group.

2. The degree of involvement in political power.

3. Level of participation in economic power or ownership.

4. Access to means of subsistence and development, including income, education, healthcare, housing, public services, and overall living conditions.

5. Exposure to environmental risks, both in natural environments and in settlements, including those related to production.

6. Protection against social risks and provision of social security.

The proposed approach diverges significantly from Western stratification methodologies by aiming to unearth the root causes of social inequalities rather than focusing on surface-level and fragmented characteristics. Rather than substituting social inequalities with non-social disparities, this comprehensive historical-materialistic approach aims to unveil profound and fundamental disparities among social groups and communities, including classes and castes.

Social inequality denotes disparities in social standing that can lead to notable variations in the quality of life and living conditions among social groups and communities. While this inequality is a typical feature of exploitative societies, in certain instances, it can be perceived as a significant injustice, prompting renewed efforts to combat it.

Irrespective of the researcher's initial standpoint, it is imperative to establish a well-defined core concept. Precise comprehension of the research subject is essential to avoid the confusion and convolution prevalent in contemporary social science discourse.

Without examining social inequalities through an ideological lens, the methodology employed in studying them risks becoming ambiguous and inconsistent. In this context, methodology refers to applying principles derived from a particular worldview to knowledge acquisition, creative expression, and practical implementation. While this definition generally applies to all sciences, it is relevant in studying human behavior in society and the social sciences (Kopnin, 1964). Essentially, ideology shapes the methodology employed in scientific research, especially in examining society and human behavior within it.

Ideology typically encompasses a specific worldview or standpoint, including an ideal state of existence and the strategies and orientation for attaining it.

The practical nature of science ensures that the ideological consistency of social science stems from its partiality and is sustained by it (Rakitskij, 2017).

When investigating social inequality, it becomes crucial to address the following inquiries:

- Is any social inequality ever deemed acceptable or socially indispensable, universally or during specific historical epochs?

- Is it pragmatic and essential to aspire to the complete eradication of social inequality from society, or is it sufficient to merely constrain it?

Scientific inquiry doesn't aim to resolve these queries but rather to make an ideological decision. By confronting and resolving these issues, research on social inequality can circumvent ambiguity, inconsistency, and vacuous discourse, ensuring the investigation is grounded in a lucid and purposeful approach.

According to Parsons (1940), social stratification systems define class status through two key structural-functional components: the occupational division of labor and the kinship system. The occupational division of labor dictates that class status is primarily determined by professional achievements, which are assessed using universal efficiency criteria in socially functionalized domains. The kinship system manifests in socially functionalized areas, where family bonds are essential, even in environments promoting equal-opportunity ideologies. Various studies suggest that the contemporary evolution of kinship structures allows individuals to achieve professional mobility while maintaining family cohesion (Polyakova, 2014).

During the 20th century, three main methodological approaches – Marxist, Weberian, and structural-functionalism – provided different viewpoints on the essence of social inequality. These approaches shaped the theoretical and empirical structures concerning social inequality systems and social status or class development mechanisms in sociology. However, significant shifts in the theoretical examination of social inequality took place during the latter part of the 20th century, leading to the introduction of new methodological approaches.

Theoretical shifts in the examination of social inequality during the latter portion of the 20th century arose in response to significant societal changes occurring during that period. These changes encompassed modifications in the configurations of social inequality, which were mirrored and conceptualized within sociological theory. Thus, the scrutiny of concrete historical events parallels the scrutiny of their theoretical reconstructions. This article is formulated upon this premise, analyzing historical events to illustrate the transformation and waning of the Marxist theory of inequality centered on economic class, along with the progression of Webe-

rian (Weber, 2018) and Parsonsian (Parsons, 1940) methodological approaches. Researchers adopt diverse approaches and theoretical stances regarding the "labor society" and its eventual demise. However, they all pinpoint specific characteristic processes and phenomena contributing to the notion of the "end of the working society". This concept was most extensively elaborated upon by Offe (1985).

Offe (1985) posits that the labor society, synonymous with the industrial society emphasizing the importance of the industrial sector, undergoes a significant shift with the decline of the working culture. This shift signifies a departure from the centrality of workers and their roles in production as the principal organizing principle of social structures. Conflicts over industrial production control cease to be the primary impetus for social development. The rationalization of technical and organizational relationships or economic means and ends through industrial capitalist rationality no longer holds sway as a rational approach leading to societal advancement.

Offe's (1985) propositions are not just theoretical constructs, but they are also backed by empirical evidence from sociological inquiries and real-world social phenomena. This evidence supports the idea that the concept of work is not an inherent societal structure, but rather a construct influenced by external factors. This understanding relegates industrial sociology to a specialized domain of applied research. Moreover, research shows that the realm of work no longer solely shapes public consciousness and behavior. This is evident in the diminishing role of socioeconomic status indicators in influencing electoral behavior and political engagement, even less so than religious affiliation. Similarly, social and political conflicts have shifted their focus from labor-capital dynamics to management.

In his work "Power without Property," Berle (1959), a proponent of managerial theory, contests the conventional separation of ownership and control as illogical. He argues that control inherently entails possession; without control, ownership loses its essence. The notion of "ownership" merely reflects control over the means of production. Societies witnessed a "Power without Property" output paradigm in the mid-twentieth century. Consequently, the theoretical dissociation between ownership and control functions must yield a more profound understanding. In practice, ownership-based appropriation is waning, supplanted by robust power systems. Thus, property emerges as a specific manifestation of power.

All the above-mentioned points of view have been considered from a theoretical point of view.

But still the main purpose of applying the methods of cluster analysis and forecasting to identify the living standards of the population by regions

Cluster analysis and forecasting are powerful tools for studying the standard of living in different regions. They help to identify groups of regions with similar characteristics and to forecast future trends in living standards. The results of such studies can be used to develop effective social policies aimed at improving the living conditions of the population in different regions of the country.

The method of hierarchical clustering was used to identify clusters by regions. This method creates a hierarchical structure of clusters, gradually uniting regions with similar indicators of living standards.

Visually, the method of hierarchical clustering is represented in the form of a dendogram.

The Box-Jenkins model (ARIMA (p, d, q)) was applied to forecast one of the main indicators of the standard of living of unemployment.

$$Y_t = c + \varphi_1 Y_{t-1} + \varphi_2 Y_{t-2} + ... + \varphi_p Y_{t-p} + \\ + \theta_1 \varepsilon_{t-1} + \theta_2 \varepsilon_{t-2} + ... + \theta_q \varepsilon_{t-q} + \varepsilon_t,$$

where
- Y_t: time series value at time t
- c: constant
- φ_i: autoregressive coefficients (i = 1, 2, ..., p)
- ε_t: white noise (random error)
- θ_i: moving average coefficients (i = 1, 2, ..., q)

The initial model (ARIMA), was constructed using the given equation

Results and discussion

In Kazakhstan, poverty reduction is one of the urgent activities of state bodies, so various programs and measures to reduce poverty have been adopted, including such measures as increasing employment, reducing unemployment, increasing the efficiency of public works, improving vocational training and retraining, etc. on the basis of the main criteria for income – this is the subsistence minimum and the poverty line. At the same time, all these measures, in our opinion, require adjustment in terms of determining the main parameters and indicators.

Social inequality and poverty, despite the global nature of this problem, is less studied in Kazakhstan than in developed Western countries (Ostry et al. 2014).

The most important social factors in the regional aspect influencing social inequality and poverty are such indicators as the unemployment rate, the stan-

dard of living of the population, the level of employment of labor resources (Esping-Andersen, 1999).

Taking into account regional differences in the development of poverty reduction measures and the definition of income and employment policies, statistical research methods were applied.

For the study, analysis of variance (the "general linear model" method) was applied. It is based on correlation or regression analysis used in multivariate analysis. An ARIMA model was also built.

With the help of analysis of variance, significant regional differences in the level of unemployment were revealed. A hypothesis was put forward that, despite the fact that there is an imbalance between regions, the unemployment rate does not differ by region.

Especially globally, a regional imbalance is observed in terms of the level of employment of labor resources and the quality of life in the regions of the Republic of Kazakhstan.

As the former Vice Minister of National Economy of the Republic of Kazakhstan Madina Abylkasymova stated, "In the field of internal migration, the problem of regional imbalance of labor resources remains today. As a result of irrevocable migration from the northern regions of Kazakhstan to Russia, the demographic situation in these regions is deteriorating. Migration flows are attracted to regions with significantly higher per capita productivity growth."

According to her, there is a personnel imbalance: in the northern regions, qualified personnel are most often required in industry, and migrants arriving in these regions, as a rule, do not have the necessary skills.

"At the same time, most of the migrants, having low qualifications, seek self-employment or employment in the sector of large cities and agglomerations, where there are more opportunities for employment. In the northern regions, these sectors are growing much more slowly" (KazTAG, 2022).

Currently, the labor market is experiencing a net outflow of skilled labor from Kazakhstan to Russia and abroad, and a net influx of unskilled labor with no vocational education.

All models were built using application software packages such as Gretl and R.

Using the ARIMA model, we built a short-term forecast for 5 years (2017-2022 years, and the representative year is 2022) ahead in terms of the unemployment rate in the Republic of Kazakhstan.

A cluster analysis of the regions was also carried out in terms of poverty indicators.

The initial data for this type of analysis were selected by determining the most important indicators characterizing the social inequality of the population. In this paper, the following variables were selected: the subsistence minimum, the human development index, the average nominal income, and the unemployment rate by regions.

To determine the number of clusters, we use a dendrogram, which is shown in Figure 1. On it we see a vertical hierarchical tree graph, with the help of which we determined that the optimal number of clusters is 3 clusters. In this graph, the variables are combined with each other using the far neighbor method. The far neighbor method means by itself the union of the object the most distant element, which is located closer to the new object. The first combines the human development index, the average nominal income of the population and investment in fixed assets. In the second cluster, these data are combined with the subsistence minimum, and in the third, the unemployment rate by region is added to them.

Dendrogram of cluster analysis

Living wage, Invest, HDI, Income ,Unemployment
Метод: ward.D2
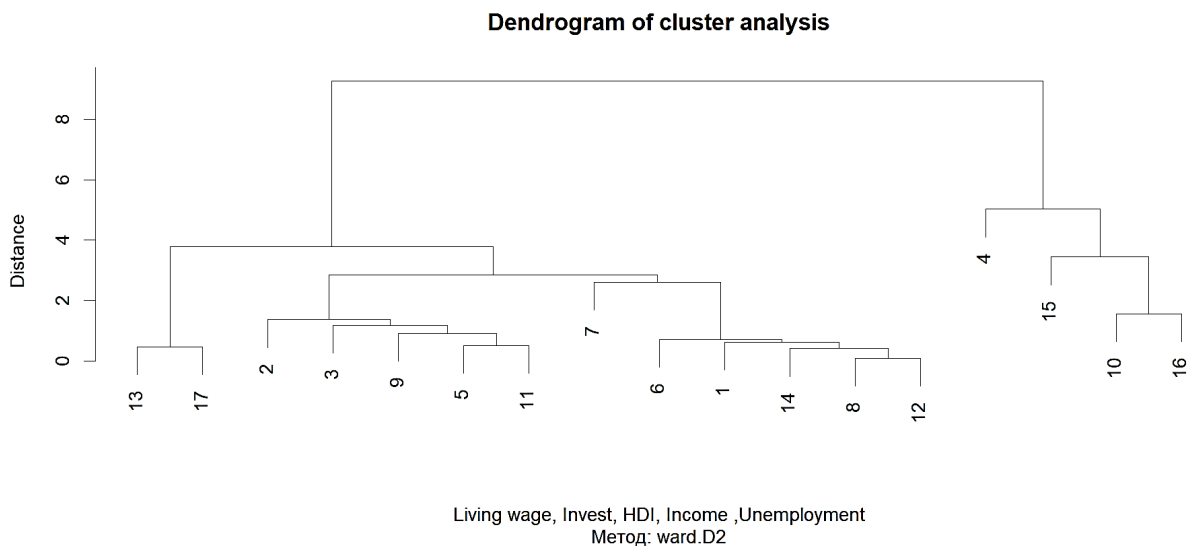
We can show this dendrogram more clearly as follows.
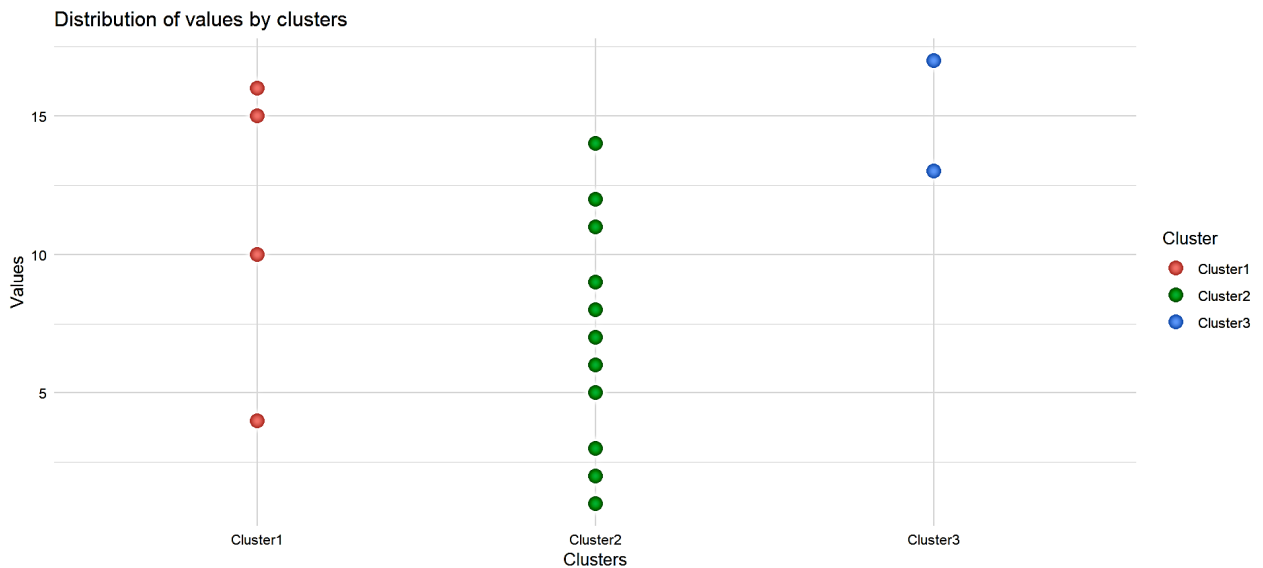
Figure 1 – Dendrogram
Note – compiled by the author on the basis of Stat.gov.kz [Electronic resource]

The predictors divided in this way are tested for the level of significance, since we reject the null hypothesis and accept the competing one, except for the investment indicator. The results are summarized in Table 1 (see Appendix – Tables (Table 1)).

In Figure 2, we see clusters by the level of predictors. In terms of unemployment, the regions included in cluster 3 are in the lead, this is due to the average income, which is very low compared to other regions. Also in last place are the regions of the

3rd cluster in terms of investments in fixed assets. The regions of the first cluster are slightly higher than the regions of the second cluster, which indicates a relatively low unemployment rate. The first cluster leads in terms of the average nominal income of the population, in terms of investment in fixed capital, the subsistence minimum, and, accordingly, the human development index. The regions of the second cluster have the lowest unemployment rate, as well as the cost of living and the human development index.
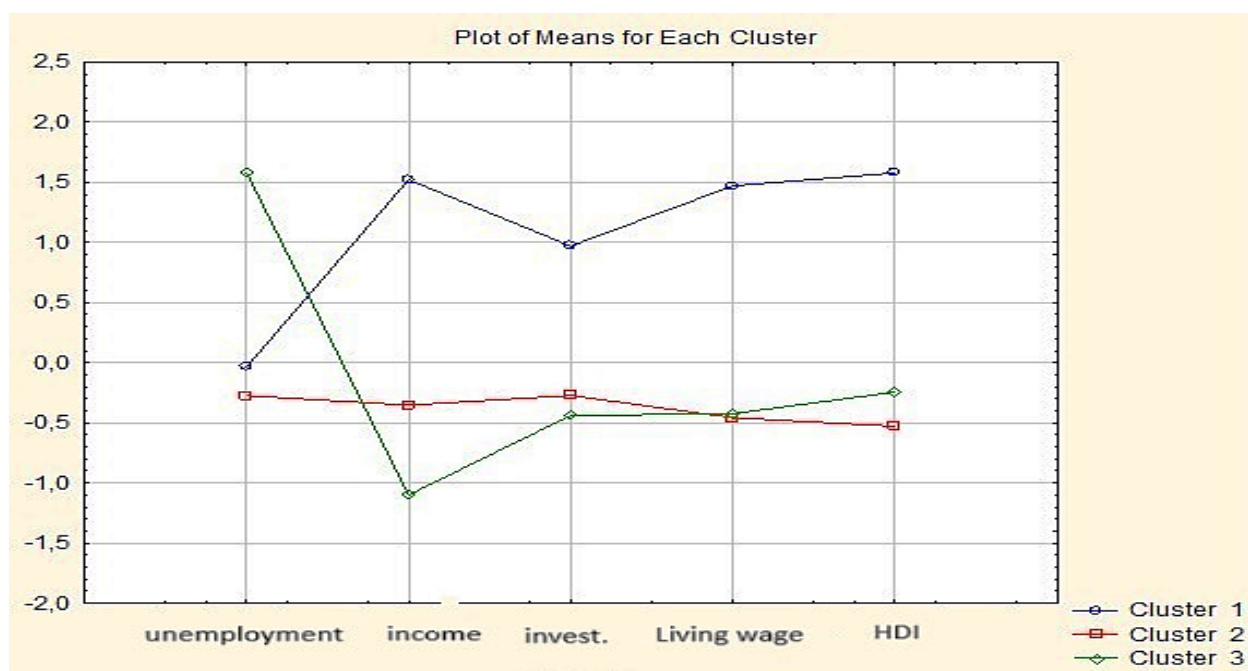
Figure 2 – Graph of clusters
Note – compiled by the author (QazStat, 2022)

The k-means method divides the regions studied in this case according to the principle of proximity of average values. Thus, the first cluster included Atyrau, Mangistau regions and the city of Astana. As we know, oil production and processing are developed in the first two regions. And precisely because of the concentration of raw materials in these parts, there are many foreign companies there. Accordingly, employees of foreign companies have higher wages than in national companies, and the city of Astana is the capital of Kazakhstan. Many residents of other regions that do not belong to this cluster come here to earn money, also to study, after which they settle in these cities and increase the number of educated labor forces in them.

Table 2 shows the distance between the average values of each region and the average value of the cluster (see Appendix – Tables (Table 2)). With an average unemployment cluster value of 4.775 in Mangistau and Atyrau regions, it is 4.8, in Astana it is 4.4, respectively. Of all the regions of the first cluster, the Mangistau region has the lowest average nominal income of 137.5 thousand tenge. And the highest is in the Atyrau region 210 thousand tenge. The highest human development index in the city of Astana is 0.82, and the average for the cluster is 0.74.

The second cluster (see Appendix – Tables (Table 3)) includes such regions as Akmola, Aktobe, Almaty, West Kazakhstan, Zhambyl, Karaganda,

Kostanai, Kyzylorda, Pavlodar, North Kazakhstan and East Kazakhstan regions.

The main difference between the regions of the second cluster and the first is that in the second cluster the average nominal income of the population, investment in fixed assets, and the subsistence minimum are much lower.

Of the above regions that are included in the second cluster, the lowest unemployment rate is observed in the Karaganda region, which is explained by the presence of factories for the processing and extraction of coal and other minerals. This region is also attractive to investors for the same reasons and is a leader in capital investment. In terms of average nominal income, the leader is the West Kazakhstan region, which is rich in natural gas deposits. The average human development index is 0.446. The third cluster includes the Turkestan region and the city of Shymkent (see Appendix – Tables (Table 4)). The city of Shymkent is located in the Turkestan region and was its center until 2017. The average nominal income is much lower than in the previous clusters, although the subsistence level is at the level of the second cluster, which also leads in terms of unemployment.

Let's start the analysis of variance with a strip chart. Which clearly shows us that the highest level of unemployment is observed in such regions as West Kazakhstan, North Kazakhstan, Turkestan, Almaty, Shymkent. These are regions that are included in high-risk areas.

Then the Anova model was built in the R program.

During the analysis, the null hypothesis was rejected and an alternative hypothesis was put forward, which confirmed that regional differences in unemployment rates are significant. Therefore, we conclude that the quality factor still affects the performance indicator. We make such an input based on the fact that the calculated Fisher criterion is greater than the tabular one and the p-value is less than 0.05 significance level.

We will check check whether the conditions for the applicability of the analysis of variance are met:
- Is there homogeneity of dispersions?
- Do the residuals have a normal distribution?

To check the equality of variances, we use the Levene test best, the Barlett test is undesirable.

The null and alternative hypotheses for both tests are:
- H0: variances are equal
- H1: at least one variance is different

During the Leven test, the null hypothesis was confirmed: The p-value is 0.3085.

Since p-value = 0.3085, it is possible to reject the H0 hypothesis only with an allowable error of 30.85%. Therefore, the hypothesis of homogeneity of variances is accepted at the 5% significance level.

Do the residuals have a normal distribution?

Shapiro.test(a$unemployment), Cramer-von Mises and Anderson-Darling tests. These criteria are less known, but usually work much better than the Lillifors criterion. They are implemented in the cvm.test() and ad.test() functions respectively: Cramer test – cvm.test(a$unemployment), ad.test(a$unemployment)

All tests for the normality of the distribution confirmed the hypothesis of the normality of the distribution.

Shapiro-Wilk normality test
W = 0.91405, p-value = 0.1171;
Cramer-von Mises normality test
W = 0.13324, p-value = 0.03529;
Anderson-Darling normality test
A = 0.70231, p-value = 0.05427.

Conclusion

The forecast for 5 years ahead in terms of the unemployment rate of the Republic of Kazakhstan was built using the ARIMA model in the Gretl program.

To determine which model we will use Ar(1) or Ma, a correlogram (see Appendix A) was constructed.

The graph showed that we will use the Ar (1) model, since, as we can see the ACD autocorrelation graph decreases slowly, and the PACF partial autocorrelation graph narrows very quickly to zero.

The forecast showed us that the unemployment rate in the whole of the Republic of Kazakhstan will decrease every year (see Appendix B).

If the forecast shows that the unemployment rate in the Republic of Kazakhstan (RK) will decrease, it may indicate positive economic and socio-demographic processes. Let us consider possible reasons that may explain this decrease. In some regions of the country, the decrease in unemployment may be associated with a decrease in the working-age population for demographic reasons, such as the aging of the population and a decrease in the number of young people entering the labor market. A decrease in the active population due to migration to other countries or lower birth rates may also contribute to lower unemployment as competition for jobs is reduced. SMEs can also have an impact: the development of SMEs, which are often an important source of jobs, can also contribute to lower unemployment.

Based on this analysis, we can conclude that the projected decline in unemployment in Kazakhstan may be the result of a combination of factors, including economic growth, economic diversification, government employment programs, improved skills of the population and demographic changes. It is important to note that a sustained decline in unemployment requires constant attention from the government and business to maintain economic activity and create new jobs.

The regional disproportions in frame of social inequality can be decreased by maintaining the demographic stability and by measures of the social development policy including poverty eradication. To do this, comprehensive strategies and programs should be developed for all areas where poverty exists, which are aimed at environmentally sound and sustainable use of the environment, resource mobilization, poverty alleviation and eradication, employment and sustainable income generation opportunities.

Indicators of economically sustainable development, namely focus on investment in human capital, with special policies and programs to address the problems of rural areas, urban poor, women and children.

Based on the analysis of the forecast, it can be concluded that the projected decline in unemployment in Kazakhstan may be the result of a whole set of factors, including economic growth, diversification of the economy, government employment programs, improved skills of the population and demographic changes. It is important to note that a sustained decline in unemployment requires constant attention from the government and business to maintain economic activity and create new jobs.

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Appendix A
Correlogram of the unemployment rate using the ARIMA model in the Gretl program
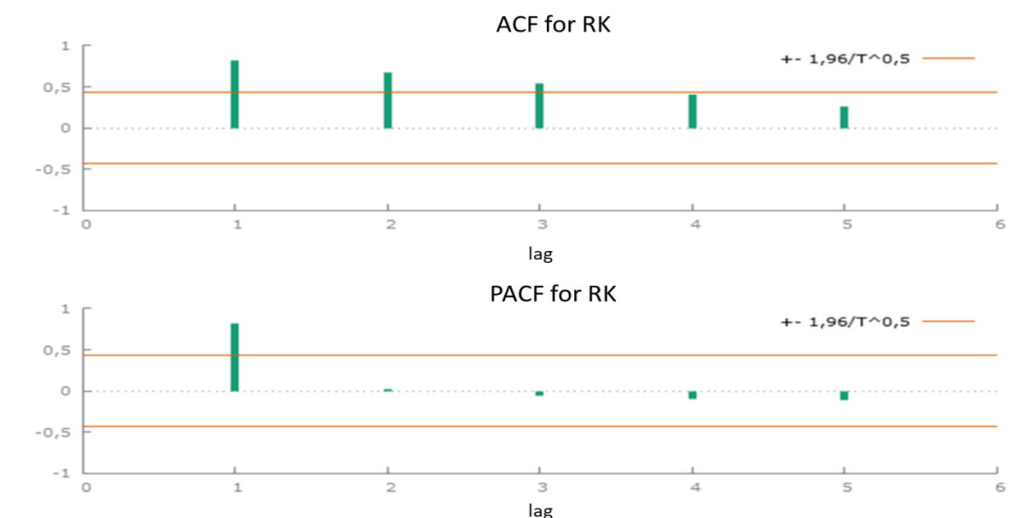
Appendix B
Forecast indicators of the unemployment rate in the Republic of Kazakhstan
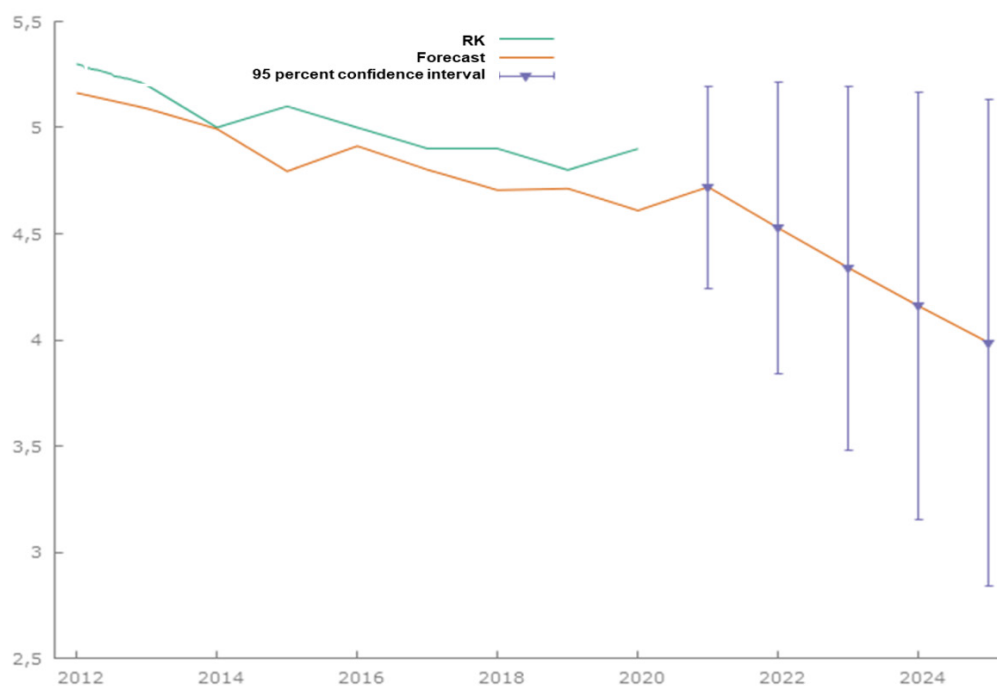
Appendix – Tables

Table 1 – Predictor values

Variable	Analysis of Variance (Regions (2))					
	Between SS	Df	Within SS	df	F	signif. p
Unemployment	5,84174	2	10,15826	14	4,02551	0,041581
Income	13,04668	2	2,95332	14	30,92340	0,000007
Invest	4,96491	2	11,03509	14	3,14944	0,074232
Living wage	11,30759	2	4,69241	14	16,86833	0,000187
ICR	13,15230	2	2,84770	14	32,33000	0,000006

Note – compiled by the author (QazStat, 2022) [27]

Table 2 – Regions of the first cluster

Regions	Members of Cluster Number 1 (Регионы (2)) and Distances from Respective Cluster Center Cluster contains 4 cases
	Distance
Atyrau	1,485714
Mangistau	0,820369
Astana city	0,947885
Almaty city	0,844723

Note – compiled by the author (QazStat, 2022) [27]

Table 3 – Regions of the second cluster

Regions	Members of Cluster Number 2 (Регионы (2)) and Distances from Respective Cluster Center Cluster contains 11 cases
	Distance
Akmola	0,297552
Aktobe	0,389522
Almaty	0,470583
West Kazakhstan	0,378620
Zhambyl	0,327441
Karaganda	0,773545
Kostanai	0,196102
Kyzylorda	0,281453
Pavlodar	0,325257
North Kazakhstan	0,349306
East Kazakhstan	0,396948

Note – compiled by the author (QazStat, 2022) [27]

Table 4 – Regions of the third cluster

Regions	Members of Cluster Number 3 (Регионы (2)) and Distances from Respective Cluster Center Cluster contains 2 cases
	Distance
Turkestan	0,125019
Shymkent	0,125019

Note – compiled by the author (QazStat, 2022) [27]

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EDUCATIONAL MOBILITY AS AN INSTRUMENT OF ECONOMIC REGULATION OF INTERNAL MIGRATION IN THE REPUBLIC OF KAZAKHSTAN

This article considers the role of educational mobility in the regulation of internal migration in Kazakhstan. In the face of significant socio-economic changes, understanding the link between education and migration becomes key to shaping effective public policies. The article analyses state programs and initiatives in the field of education, which can serve as mechanisms for regulating migration flows, promoting balanced regional development.

Based on the analysis of strategies and policies in the field of education, as well as statistics on academic mobility, the study has revealed a significant impact of educational mobility on migration processes in the country. It showed that education is an economic tool to encourage people to move to other regions. In this regard, the findings of the study emphasize the importance of targeted education policies that can reduce excessive migration to large cities and contribute to population stabilization in small towns and villages.

The study highlights the potential of educational mobility to create equal opportunities in different regions. It identifies the main challenges and barriers to access to quality education, especially in rural areas, and discusses how these problems exacerbate internal migration. The findings show that targeted education policies can not only empower individuals but also stabilize communities by reducing excessive migration to urban centres.

The aim of this scientific article is to consider internal educational mobility as a tool for economic development of regions of Kazakhstan. The present study aims to: 1) analyze internal migration processes and consider projections of demographic changes in regions; 2) find the link between youth inflow into the region and its socio-economic development; 3) evaluate the effectiveness of state programs aimed at regulating migration processes through education, in particular the «Serpin-2050» program; 4) offer recommendations for the state regulation of migration processes.

Considering education mobility as an economic tool, this article contributes to a broader discourse on migration management and regional development strategies in Kazakhstan. The findings of this study provide practical guidance for policymakers seeking to use education as a means to manage internal migration effectively.

Key words: educational mobility, internal migration, education policy, migration policy, support measures.

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Білім беру мобильділігі Қазақстан Республикасындағы ішкі көші-қонды экономикалық реттеу құралы ретінде

Бұл мақалада білім беру мобильділігінің Қазақстанның ішкі көші-қонын реттеуге қатысты рөлі қарастырылады. Маңызды әлеуметтік-экономикалық өзгерістер жағдайында білім беру мен көші-қонның арасындағы байланысты түсіну тиімді мемлекеттік саясатты қалыптастыру үшін өзекті болып табылады. Мақалада теңгерімді өңірлік дамуға ықпал ету арқылы көші-қон ағынын реттеу механизмдерінің қызметін атқара алатын білім беру саласындағы бастамалар мен мемлекеттік бағдарламалар талданады.

Білім беру саласындағы стратегия мен саясатты талдауға, сондай-ақ академиялық мобильділік бойынша статистикалық деректерге сүйене отырып, білім беру мобильділігі елдегі көші-қон үдерістеріне айтарлықтай әсер ететіні зерттеу барысында анықталды. Бұл жайт білім

лықты басқа өңірлерге көшуге ынталандыратын экономикалық құрал болып табылатынын көрсетті. Осыған байланысты зерттеу қорытындылары мақсатты білім беру саясатының маңыздылығын айқындайды, себебі ол ірі қалаларға шамадан тыс көші-қонды қысқартуға және шағын қалалар мен ауылдарда тұратын халық санын тұрақтандыруға ықпал ете алады.

Әртүрлі өңірлерде тең мүмкіндіктерді білім беру мобильділігінің әлеуеті жоғары екендігі зерттеу барысында айқындалды. Мақалада негізгі мәселелер мен сапалы білімнің қолжетімділігіне қатысты тосқауылдар, әсіресе ауылдық аймақтардағы сапалы білімге қатысты қиындықтар анықталды, сондай-ақ осындай мәселелер ішкі көші-қон мәселелерін қалай қиындататыны талқыланды. Қорытындылай келе, мақсатты білім беру саясаты жекелеген тұлғалардың құқықтары мен мүмкіндіктерін кеңейтіп қана қоймай, қалалық орталықтарға шамадан тыс көші-қонды қысқарту арқылы қауымдарды тұрақтандыра алады деп айтуға болады.

Осы ғылыми мақаланың мақсаты Қазақстан өңірлерінің экономикалық даму құралы ретінде ішкі білім беру ұтқырлығын қарастыру болып табылады.

Осы зерттеу шеңберінде мынадай міндеттер қойылады: 1) ішкі көші-қон процестерін талдау және өңірлердегі демографиялық ахуалдың өзгеру болжамдарын қарау; 2) өңірге жастардың ағыны мен оның әлеуметтік-экономикалық дамуы арасындағы байланысты табу; 3) білім беру арқылы көші-қон процестерін реттеуге бағытталған мемлекеттік бағдарламалардың, атап айтқанда «Серпін-2050» бағдарламасының тиімділігін бағалау; 4) көші-қон процестерін мемлекеттік реттеу бойынша ұсыныстарды ұсыну.

Білім беру мобильділігін экономикалық құрал ретінде қарастыра отырып, бұл мақала Қазақстанда көші-қонды және оңтайлы даму стартегияларын басқару бойынша анағұрлым кең дискурсқа өз үлесін енгізеді. Осы зерттеудің соңында шығарылған қорытындыларда білім беруді елдегі ішкі көші-қонды тиімді реттеу құралы ретінде пайдалануға ұмтылатын саясаткерлерге тәжірибелік ұсынымдар келтірілді.

Түйін сөздер: білім беру ұтқырлығы, ішкі көші-қон, білім беру саясаты, көші-қон саясаты, қолдау шаралары.

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Образовательная мобильность как инструмент экономического регулирования внутренней миграции в Республике Казахстан

В данной статье рассматривается роль образовательной мобильности в регулировании внутренней миграции в Казахстане. В условиях значительных социально-экономических изменений понимание связи между образованием и миграцией становится ключевым для формирования эффективной государственной политики. В статье анализируются государственные программы и инициативы в сфере образования, которые могут служить механизмами регулирования миграционных потоков, способствуя сбалансированному региональному развитию.

Основываясь на анализе стратегий и политики в области образования, а также статистических данных по академической мобильности, исследование выявило значительное влияние образовательной мобильности на миграционные процессы в стране. Оно показало, что образование является экономическим инструментом, стимулирующим население к переезду в другие регионы. В связи с этим, выводы исследования подчеркивают важность целевой образовательной политики, способной сокращать чрезмерную миграцию в крупные города и способствовать стабилизации населения в малых городах и селах.

Исследование подчеркивает потенциал образовательной мобильности для создания равных возможностей в разных регионах. В нем определены основные проблемы и препятствия для доступа к качественному образованию, особенно в сельских районах, а также обсуждается вопрос о том, как эти проблемы усугубляют проблемы внутренней миграции. Выводы показывают, что целевая образовательная политика может не только расширить права и возможности отдельных лиц, но также стабилизировать общины за счет сокращения чрезмерной миграции в городские центры.

Целью данной научной статьи является рассмотрение внутренней образовательной мобильности как инструмента экономического развития регионов Казахстана.

В рамках настоящего исследования ставятся следующие задачи: 1) проанализировать внутренние миграционные процессы и рассмотреть прогнозы изменения демографической ситуации в регионах; 2) найти связь между притоком молодежи в регион и его социально-экономическим развитием; 3) оценить эффективность государственных программ направленных на регулиро-

вание миграционных процессов через образование, в частности программы «Серпин-2050»; 4) предложить рекомендации для государственного регулирования миграционных процессов.

Рассматривая мобильность образования как экономический инструмент, эта статья вносит свой вклад в более широкий дискурс по управлению миграцией и стратегиям регионального развития в Казахстане. Выводы, сделанные по итогам этого исследования, дают практические рекомендации для политиков, стремящихся использовать образование как средство эффективного регулирования внутренней миграции.

Ключевые слова: образовательная мобильность, внутренняя миграция, политика образования, миграционная политика, меры поддержки.

Introduction

The emergence and development of universities and the expansion of their branches are inextricably linked to urban development (Bender, 1988). Large universities with a wide choice of specialties appeared and developed in the major cities. Today, there is no doubt in the world that higher education institutions make a significant contribution to the development of cities and their environment. Students who come to study in the cities become an important part of society, sometimes such cities get the name "college town" (Gumprecht, 2003). The emergence of a greater number of young people in cities are starting to trigger multiplicative effects on its development (Florida, 2005). The ability of universities to have a restorative effect on cities is not excluded (Goddard et al., 2014; Massey, Field, Chan, 2014). Although there is ample evidence of the impact of youth and universities on urban development, it is difficult to distinguish in practice the effect of student migration from other factors of urban development. But the demographic consequences of migration of young people in one or other region and city are obvious: there is an improvement in the birth rate and mortality rates, a change in the age structure of the population of the territory where young people migrate. But the demographic situation of the territories, in which there is an outflow of young people (Gabdrakhmanov, 2022) is worsening. Therefore, the high concentration of universities in capitals may reduce the level of access to higher education and negatively affect other regions of the country.

Many countries are already using educational mobility as a tool for regulating internal migration. For example, in China (Lu, 2009; Gao, 2021) and India (Ray, 2010) governments actively support the development of educational institutions in the regions in order to reduce the outflow of population to megacities. Some countries of the EU also have programs aimed at attracting students and young professionals to regions with low population density (Torche, 2021; Barrioluengo, 2017).

One of the problems in the current migration situation is the increase in uncompensated migration. If educational migrants do not return to their home countries for education or employment, but seek to make their academic geographical movement irreversible and irretrievable, such educational migration becomes uncompensable.

In Kazakh studies on the educational migration of youth, significant focus has been given to the issue of external migration from the country (Lesenev et al., 2021; Tolyew, 2020; Rakhimbekova, 2019). However, there is a lack of research on internal educational migration and its effects on the socio-economic development of regions. This represents a gap in existing studies.

Thus, educational mobility is perceived as an important tool for economic regulation of internal migration based on a strategy aimed at balancing the economic development of different regions by providing equal educational opportunities and stimulating population movement within the country.

Uneven economic development of the regions of Kazakhstan contributes to a significant increase in internal migration. Moreover, the existing disproportion in urban and rural areas between income and development opportunities is characteristic of all regions of the country. In villages, high school graduates have virtually no chance of getting a decent education and finding a good job. The low level of development of social infrastructure and the lack of work in small towns and villages are becoming key drivers of internal migration and the outflow of the rural population to larger cities and regional centers.

Kazakhstan is a country with large territory and low population density. In addition, the structure of regional economies differs from one another: in some regions industry predominates, in others agriculture. Hence, there is a high difference between the socio-economic level of development of individual regions. For example, in developed countries the difference in income from region to region can be within 1.5 times. But in Kazakhstan the situation is different. The difference in income of the rich and poor regions can be four times.

Considering the different level of development of regions, which is also an important factor in the increase of migration of population from less developed regions to more developed (megacities). The government has begun to address this problem and change policies through managing youth migration from one region to another. Within the framework of the Concept of migration policy of the Republic of Kazakhstan for 2023-2027, one of the target indicators is the level of internal mobility, which shows the share of arrivals in the northern and eastern regions of the total number of persons in the framework of interregional migration. Thus, this figure in 2022 was 12.6%, and by 2027 it is planned to increase the rate to 16.2% through the measures taken (Concept of migration policy, 2022). Youth, who are traditionally the most active part of society can influence the development of the region. The development of educational mobility has become seen as a tool for regional development, not only exchange of students between universities. One of the actions was the "Serpin" program, which aims to stimulate educational migration from regions with a surplus of labor force to regions with a deficit.

Literature review

Today, there are a significant number of works on the study of educational (academic) mobility and educational migration. The essence and features of educational mobility are explored in numerous research studies conducted by both Kazakhstani and foreign researchers (Baranova, 2018; Maslennikova, 2023; Mambetalina, 2020: 49; Bugubaeva, 2017; Srailova, 2014; Bokayev, 2023). According to them, academic mobility has become one of the power tools for managing migration process both within country and beyond its borders.

Educational migration is a multifaceted phenomenon, which is why the existing approaches to the study of this phenomenon are diverse. Educational migration, as well as its impact on regional development, is addressed in many researchers' studies (Bayram, 2022; Corcoran, 2017; Bilecen, 2020; Olinyk, 2021; Staniscia, 2018). These studies emphasize the complex interplay between educational mobility and regional development, highlighting how educational migration can influence economic growth, social cohesion, and labor market dynamics in various regions.

In the Kazakh studies concerning educational migration of young people, great attention is paid to the problem of external migration from the country abroad (Lesenev et al., 2021, Tolyew,

2020, Rakhimbekova, 2019). But there is insufficient research on internal educational migration and its impact on the socio-economic development of regions. This is the shortcoming of previous research.

Analyzing the existing studies, we can point out that there is a lack of scientific works on the study of internal educational mobility facilitating internal migration in Kazakhstan, as a multifaceted social process that contributes to structural changes in the economy of the country and its regions, its dynamic development, growth of educational, labor and social mobility of citizens, which determines the relevance of the article's topic, namely: educational mobility as an instrument of economic regulation of internal migration in Kazakhstan.

The imbalance in the socio-economic development of regions of Kazakhstan has been long. Solving it with the help of management of migration flows within the country has been tried since 2011. The government was based on the management of labour resources in regional development. At that time, the Employment Program until 2020 was adopted. Labour mobility was expected to ensure regional development and improve family welfare. Later, as part of the state program for the development of productive employment and mass entrepreneurship for 2017 – 2021 years «Enbek» attempts were made to reduce the proportion of the population engaged in low-productivity work through increased education (technical training) and labour mobility. Under this programme, the Ministry of Education and Science was responsible for the provision of training within the framework of the project «Serpin». However, these programmes have been difficult to implement and have not achieved the objectives they were set for. The population, particularly young people, continues to migrate from rural areas to large cities in Kazakhstan

Methodology

The methodological basis of research work includes a theoretical analysis of the content of scientific sources and normative documents related to implementation of educational mobility in higher education in Kazakhstan. The study uses methods of analysis and synthesis of data, evaluation of statistical materials on migration in education, as well as quantitative analysis of migration trends in education.

To solve the problem related to analysis of internal migration in Kazakhstan, statistics on migration were used, as well as analytical reports related to the

forecast of demographic change in Kazakhstan. The main migration flows, recipient regions and donor regions were identified.

To solve the problem of the relationship between migration and economic development in the region, a survey method for the resettlement population was chosen under the Enbek and Serpin programme. The survey was conducted with 121 respondents, of whom 54.5% were women and 45.5% men. The main causes and factors that influence population migration were highlighted. In addition, the study carried out econometric analysis of the impact on internal migration (Y) such factors as GDP level (X1) and unemployment rate (X2).

Statistical method and survey were used to evaluate the effectiveness of government programs aimed at regulating migration processes in the country.

Results and discussion

In December 2023, the Department of Forecasting and Research of the JSC «Center for Development of Labor Resources» developed a demographic forecast covering the period 2023-2050 and including several development scenarios (www.enbek.kz). According to the results of 2023, the distribution of population by regions (north, south, center-east, west, megacities) is as follows: the majority of the population lives in the southern regions (32%), and the megacities (Almaty, Astana, Shymkent) account for 24% of the population. The rest of the population was distributed among other regions, of which the northern region of Kazakhstan accounts for the lowest proportion (11%). Details are shown in Figure 1.
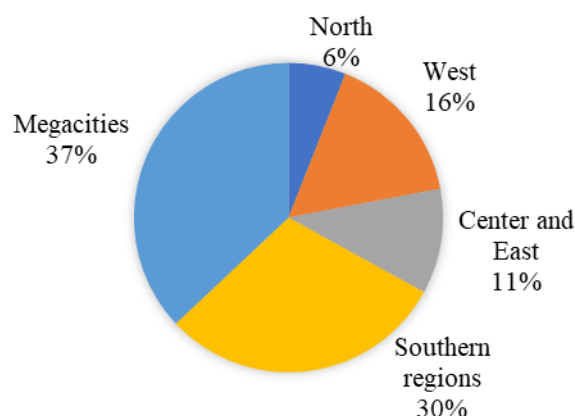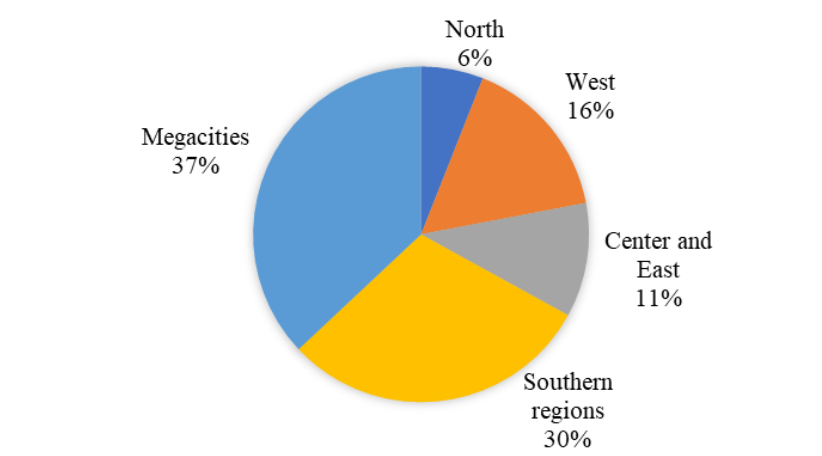

Figure 1 – Analysis of the distribution of the population of Kazakhstan by region in 2023, %
Note – based on source (Demographic forecast 2023-2050, 2023)

When looking at the age structure by region, the situation is also uneven. The largest proportion of children and adolescents is in the western and southern regions of Kazakhstan. If we look at the age structure of the population of mega-cities, they are dominated by the population aged 20 to 34. The same situation exists in the western regions of Kazakhstan. As the data of the above study show, the oldest population (from 35 years and older) is predominant in the northern, central and eastern regions of Kazakhstan. Such age differences and regional biases will have a significant impact on the future socio-economic development of these regions.

As a result of internal migration processes and other demographic changes (age structure, birth rate, etc.), the regional population structure of Kazakhstan could look like this by 2050 (figure 2).

If migration flows and demographic situation continue, by 2050, 37% of the country's population will live in megacities. For comparison, today this figure is about 24%. Those regions that now have a negative migration balance (north, center and east) and are projected to account for only 6% of the northern region by 2050, while the central and eastern regions will account for 11%. The current trend may lead to even greater imbalances in the interregional distribution of population in the future. It is expected that by 2030, compared to 2022, the total population of the north will decrease by another 4%, or 92,000. By 2050, this will be 20%. By 2050, the population of Akmola region may decrease by 4%, Kostanay – by 24%, North-Kazakhstan – by 38% (Demographic forecast 2023-2050, 2023).

Table 1 – Analysis of differences in the regional age structure of the population of Kazakhstan, 2023

Region/Age Group	Share by age group, %				
	0-9 years	10-19 years	20-34 years	35-59 years	60+years
West	22	17	20	29	12
South	23	19	19	28	11
Megacities	21	15	23	29	11
Center and East	16	15	18	33	19
North	14	14	18	34	19
Kazakhstan	**20**	**17**	**20**	**30**	**13**
Note – based on source (Demographic forecast 2023-2050, 2023)					

Figure 2 – Forecast of the distribution of the population of Kazakhstan by region in 2050, %
Note – based on source (Demographic forecast 2023-2050, 2023)
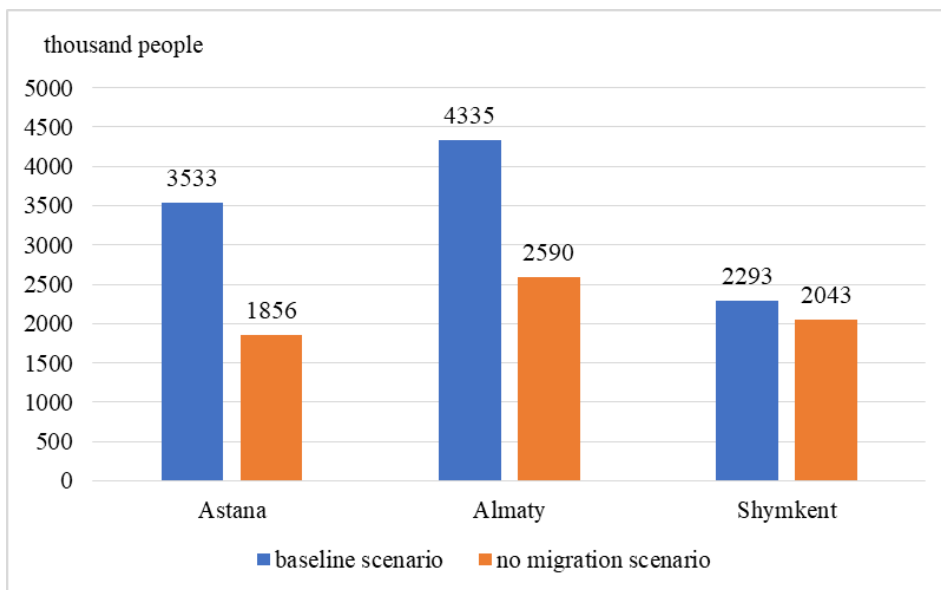
Figure 3 – Forecast of the population of megacities of Kazakhstan by 2050
Note – based on source (Demographic forecast 2023-2050, 2023)

Statistical data on the demography of Kazakhstan indicate imbalances in the regional distribution of the population as a whole and taking into account age groups. It is worth understanding that the socio-economic development of the regions also depends on the demographic situation. If there is an outflow of population and an outflow of the working-age population from the region, this will be followed by a decrease in economic activity at first, and as a consequence, a decrease in regional GDP and a decrease in the attractiveness of the region for investment. Therefore, a potential solution to this issues is to regulate and encourage internal educational migration. This approach addresses the challenge of population influx into regions with shortages while also attracting the younger age group who will come to study in these areas. Previous research has examined the impact of the presence of young people on the development of small business and found that the number of individuals aged 2-34 positively influences the growth of small businesses and individual entrepreneurship in a region. This effect is statistically significant at the 1% level and is consistent across various model specifications (Doroshenko, 2019). Additionally, another study by Duhon (2018) investigated the connection between public involvement in education and small business development, revealing a significant relationship between these factors (Duhon, 2018).

In Kazakhstan's educational sector, higher education institutions are currently making significant efforts to promote and establish both external and internal educational mobility (Methodological recommendations, 2018).

The main goals pursued through internal educational mobility are listed below.

1. Improving the quality of education. Distribution of knowledge and experience: Internal educational mobility promotes the exchange of knowledge, methods and best practices between educational institutions in different regions of the country. Access to specialized programs: Mobility allows students from less developed regions to gain access to unique or specialized educational programs at leading universities in the country.

2. Development of human capital. Internal educational mobility promotes the training of specialists who can return to their regions and contribute to their economic and social development. Providing students and specialists with opportunities for development in different parts of the country can reduce the migration of talent to other countries and support the national labor market.

3. Reducing regional disparities. Internal educational mobility contributes to the creation of equal educational conditions in all regions, which helps to reduce the disparities between developed and less developed regions. Development of regional educational centers: Stimulating educational mobility can contribute to the development and strengthening of educational institutions in the regions, which in turn attracts students and specialists there.

4. Social and cultural integration. Internal educational mobility contributes to the development of interregional ties, which helps to strengthen the sense of national unity and community. Students and teachers moving between regions participate in cultural exchange, which contributes to the development of tolerance and mutual understanding in society.

5. Adaptation to labor market needs. Internal educational mobility allows the educational system to respond more quickly to changes in labor market needs, providing regions with the necessary specialists. Educational mobility helps to distribute labor resources more evenly across the country, which can help reduce unemployment in some regions.

6. Development of academic and professional ties. Stimulating scientific research and innovation: The movement of teachers and researchers between universities and research centers promotes the development of joint projects, exchange of experience and acceleration of scientific progress. Students and teachers participating in mobility programs have the opportunity to expand their professional networks, which can contribute to their further career growth (Migration Policy Concept, 2022).

At present, Kazakhstan is actively advancing internal educational mobility between its universities, a crucial component of the country's efforts to develop its education and science sectors. In order to strengthen the overall level of competitiveness of national universities both on the world stage and at the level of regions of the country, it is planned to develop criteria for the formation of certain groups of universities, namely: "Competitive at the regional level", "Competitive at the national level" and "Competitive at the international level". It is planned to continue active work aimed at creating a regional educational hub and further attracting foreign teachers and foreign students to the best universities. The available statistical data on internal educational mobility showed that 60 universities acted as sending universities for internal educational mobility in 2018, and 78 universities acted as receiving universities. (Methodological recommendations, 2018)

Table 2 – Information on internal educational mobility (by universities)

Universities	Sending students	Accepting students
National	6 universities – 23 people	8 universities – 255 people
State	27 universities – 1197 people	28 universities – 900 people
International	1 university – 32 people	1 university – 38 people
Joint-stock	7 universities – 178 people	12 universities – 206 people
Private	19 universities – 371 people	29 universities – 402 people
Note – based on source (Methodological recommendations, 2018)		

Internal educational mobility is carried out mainly through extra-budgetary funds, such as funds from the students themselves, exchange funds, funds from the university itself, or a grant from the university (Fig. 4).

Educational mobility within Kazakhstan is developing mainly due to inter-university cooperation, which is confirmed by digital data – 48% of students are sent through exchange.

According to migration policy of Kazakhstan, one of the 7 main areas is educational immigration, to stimulate which systematic work is carried out aimed at creating industry universities with modern scientific laboratories and buildings. In the past two years, 2022-2023, six branches of foreign universities have been established at Kazakhstan institutions. Due to these active measures, the proportion of foreign students among the total student population rose to 4.4% by yearly 2024 (Concept of Migration Policy, 2022).

In Kazakhstan, different programs and national projects were developed at various times aimed at im-proving the situation with migration and interregional imbalances. Such programs and projects can be attributed to: "With diploma in the village", "Serpin – 2050", "Enbek", "Strong regions – drivers of development of the country". For example, from 2017 to 2021, 30,000 people or 7,965 families were resettled under the Enbek program. These results are in line with the plan. But the percentage remaining in recipient regions was not taken into account as an indicator of programme effectiveness. This error in assessing future effectiveness was not corrected in the national project "Strong regions – drivers of development of the country". But the results of previous resettlement programs and in the project "Strong regions – drivers of development of the country" took into account the difficulties of the adaptation period of the settlers and proposed the idea of group resettlement by 520 families per population to facilitate the transition period. This has led to a corresponding increase in the quota for the number of immigrants.
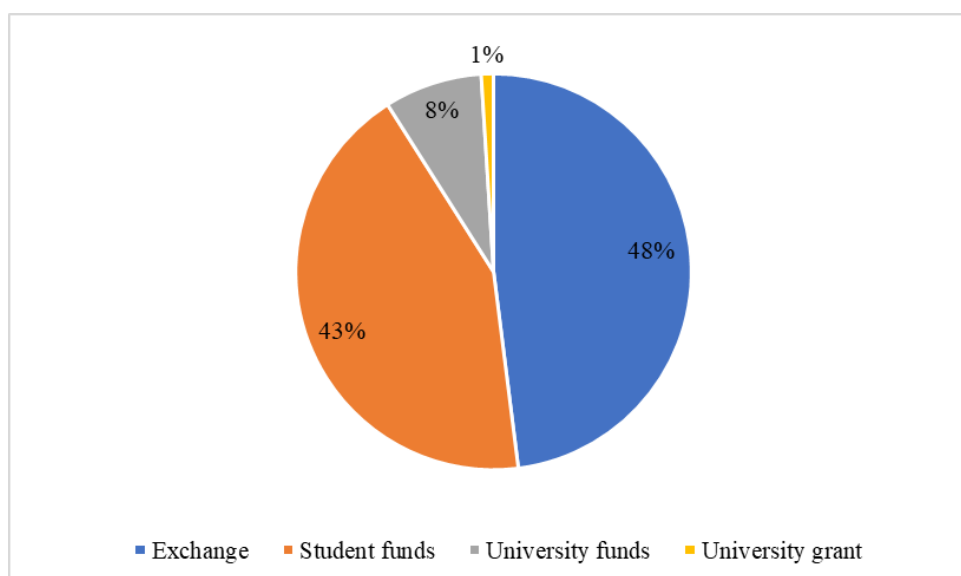
Figure 4 – Structure of alternative sources of financing for students' educational mobility
Note – based on source (Methodological recommendations, 2018)

Since 2014, Kazakhstan has been executing the State Program "Serpin – 2050", which aims to train and then employ young people from the southern regions of the country in areas with labor shortages in the east, north, and west of Kazakhstan. This program addresses the imbalance of labor resources and helps fill significant personnel gaps in these regions (Beissenova, 2023). The educational grant is not given for all specialties, but only for certain ones. At the moment, the following specialties fall under this program: pedagogical sciences, engineering, information technology, agriculture.

According to the survey, people leave their former home most frequently because of "no work" (39.7%), "low wages" (18.2%), "no housing" (26.4%), "family reasons" (9.1%), rarely mentioned reasons: "did not want to live in rural areas" (5%), "poor ecology" (0.8%), "lack of educational opportunities" (0.8%).

After completing studies and obtaining a diploma, the graduate must work in a specialty in the region where he studied or in other regions that are recipient regions under the terms of the program. The duration of the grant in 2023 has been reduced from three to two years. Regions for completion:
- East Kazakhstan region,
- Kostanay region,
- Pavlodar region,
- North Kazakhstan region,
- Karaganda region,
- Akmola region.
- Abai region.

The program "Serpin – 2050" despite its low efficiency still continues to work. No data on the number of grants completed or remaining and employed is available when searching. The Ministry of Education reports only on the number of grants allocated to this programme and on the increase in the number of participants in the programme, namely higher education institutions and colleges.

The reduction of the working time in 2023 will encourage more students to enroll in this program. Also, because most people do not want to work in the regions that are part of the programme. Because previously, on average about 17% of graduates meet the requirements for three years of work. According to the JSC "Financial Center" it is stated that there is a growing number of students who do not meet their obligations on grants and training. Between 2020 and 2022, there were 3,200 students or 35.8% who did not work on their term.

There is almost no data on the proportion of graduates who stayed in the regions and did not return. For the program "Serpin – 2050" important is the indicator of how many graduates have found employment. These data are not available.
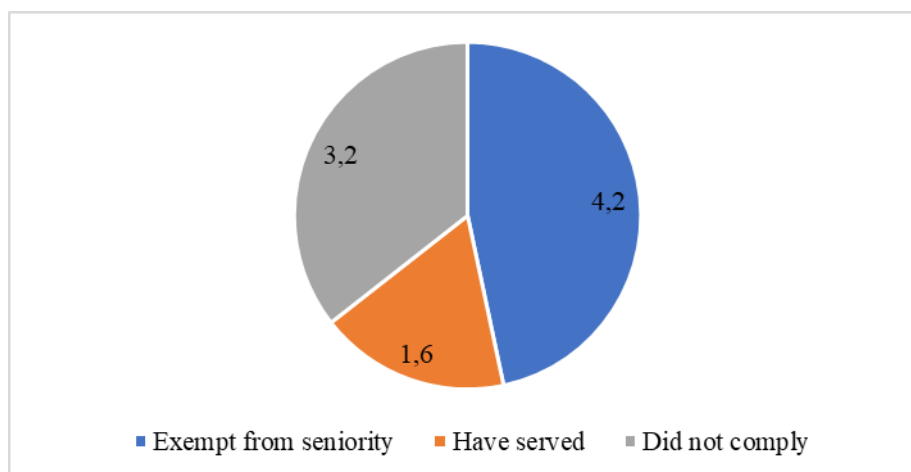
Figure 5 – Results of the implementation of the program
"Serpin – 2050" for 2020-2022. (thousands. people)
Note – compiled by the author

Table 3 – Number of grants allocated under the «Serpin-2050» project

academic year	number of grants
2014-2015	2050
2015-2016	6200
2016-2017	4212
2017-2018	4513
2018-2019	5830
2019-2020	data not found
2020-2021	5107
2021-2022	5656
2022-2023	3653
2023-2024	3653
2024-2025	3903
Note – compiled by the author	

To further support the program, additional incentives were introduced to encourage graduates to enter employment and stay in the recipient regions. For example, an economic mobility certificate will be offered, which is that if a graduate goes into employment, he or she will also be offered financial assistance to buy a home at 50% of the cost.

Every year there is an increase in the number of educational grants for this program. The number of educational institutions participating in the programm of public order execution is increasing and even the implementation of the programm almost reaches the target set by the quantitative indicators in terms of coverage and numbers, but the main objective of the programm – employment of graduates.

In the regions-recipients for graduates of universities under the program "Serpin – 2050" among other problems, the lack of high-paying work is highlighted. Another obstacle is the reluctance of graduates to work and live in rural areas. In their opinion, life in rural areas has a low level of amenities and comfort compared to urban life.

The question of the number of vacancies that would correspond to immigrants and university graduates is not resolved and rather difficult. Because the northern regions also have some unemployment and there is no oversupply of jobs. The question of wage levels is still open. The northern region is not a macro-region with high wages. For example, North-Kazakstan region is one of the lowest wage region in the country and the region's economy is predominantly agricultural. So, it often happens in all the resettlement programs that have been implemented, that the resettlers come with their families to a new place in another region and do not even know what they will be doing here.

Since 2009, the national project "With a diploma to the village" has been in effect, which eliminates the existing personnel shortage in rural areas in the areas of: education, health care, culture and sports, social security, as well as the agro-industrial complex. According to this program, in 2022, in terms of regions of Kazakhstan, the largest number of young specialists received lifting allowances in Turkestan (1,618 people), West Kazakhstan (1,031 people), Almaty regions (959 people), North Kazakhstan (872 people) and Kyzylorda (661 people). The lowest rates were recorded in Ulytau (76 people) and Abay (253 people), as well as in Atyrau region (126 people), East Kazakhstan region (312 people) and Karaganda region (351 people). (Kapital.kz. 2023).

Within the study, an econometric analysis of the impact on internal migration (Y) of factors such as GDP level (X1) and unemployment rate (X2) was carried out. Data are presented in the table.

Table 4 – Data for econometric analysis

Year	Internal migration in all flows – the exiting, human	GDP, billion dollars	Unemployment, %
	y	X1	X2
2001	271728	133,3	10,4
2002	269092	148,7	9,3
2003	291758	165,7	8,8
2004	317928	186,5	8,4
2005	298627	211	8,1
2006	295057	240,8	7,8
2007	311740	269,3	7,3

Year	Internal migration in all flows – the exiting, human	GDP, billion dollars	Unemployment, %
	y	X1	X2
2008	345138	283,5	6,6
2009	364655	288,7	6,6
2010	366037	313,5	5,8
2011	364638	344	5,4
2012	337841	370	5,3
2013	337267	417,5	5,2
2014	405616	427,5	5,1
2015	455451	407,4	5
2016	616894	423,8	4,9
2017	930820	448,5	4,9
2018	888184	478	4,8
2019	1110252	508,5	4,8
2020	845200	501,2	4,9
2021	756510	542,9	4,9
2022	222600	103,2	
Note – compiled by the author			

The regression equation (estimation of the regression equation) will look like this:

$$Y = -1490209.8625 + 3336.5875X1 + 132172.0181X2$$

Regression statistics are presented in table 5.

Table 5 – Regression statistics

plural R	0,853460149
R-square	0,728394227
Normalized R-square	0,698215807
Standard error	142441,2975
Observation	21
Note – compiled by the author	

The model parameters can be economically interpreted: increasing X1 by 1 unit leads to an increase of Y on average by 3336,587 units. The number of units is increased by 2.5 times per month; increasing X2 by 1 unit results in an average increase of Y by 132172.018 units. The number of units is also increased by 1 unit. Interpretation of regression coefficients. Constant estimates the aggregate influence of other (except for the model's xh) factors on the Y result and means that Y in the absence of xi would have been -1490209.8625. Coefficient b1 indicates that with x1 by 1, Y increases to 3336.5875. Coefficient b2 indicates that with an increase of x2 by 1, Y increases by 132172.0181.

The largest number of young specialists (66.3 thousand people) were attracted to the field of education. In second place is the healthcare sector, where 20.6 thousand people were attracted. Next come specialties in the field of sports and culture, social security – 5.2 thousand people and the agro-industrial complex – 3.2 thousand people. In the current 2024, as a result of the implementation of the programs "Serpin", "With a diploma to the village", more than 33 thousand people will receive state support measures.

Conclusion

Education mobility is one of the most important mechanisms for economic regulation of internal migration in Kazakhstan, promoting equitable distribution of human capital among regions and promoting uniform socio-economic development. The results of the study concluded that the influx of young people into regions contributes to the economic growth and development of these regions. As studies indicated young professionals bring fresh ideas, increase the competitiveness of the lo-

cal labor market and promote innovation. The more young people are attracted to a region, the higher the level of employment and labor productivity, which, in turn, has a positive effect on the standard of living of the region's population. Mobility in education is a tool for the redistribution of knowledge, skills and labour resources in a country with significant regional economic development differences. By facilitating the movement of students and professionals, educational mobility can help to eliminate regional imbalances and promote a more balanced economic landscape. For educational mobility to effectively regulate internal migration, it must be strategically designed to promote regional development, Retaining talent and creating favorable conditions for graduates to return to their home regions.

But education policy alone is not enough to develop regions economically. The study found that all government programmes, including the «Serpin program», aimed at developing regions through migration and resettlement have not achieved their goals. Even if the settlers arrived in the region, a large proportion of them did not stay there. And the reasons for this were mainly the degree of employment and wage levels in the region. If we create the conditions to attract students to the region, but not ensure their further employment, then measures may not justify themselves.

Therefore, the authors propose that an integrated approach be taken in designing public programmes for the purpose of making recommendations. This implies a comprehensive strategy that includes both educational and economic policies. Educational initiatives should include special programmes and incentives that are tailored to the specific needs of different regions, Whole economic measures can be directed towards the development of local industries and infrastructure to support the return and employment of skilled people. This integrated approach can mitigate regional disparities, making the less developed area more attractive and viable, while maximizing the benefits of migration for education. Finally, by developing a comprehensive strategy that combines education opportunities with economic development efforts, Kazakhstan can use educational mobility as a powerful tool to address regional imbalances, stimulate sustainable growth, and to build a more just and prosperous future for all its regions.

Funding

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ECOSYSTEM APPROACH TO ASSESSING THE EFFECTIVENESS OF SOCIALLY ORIENTED ENTREPRENEURSHIP

The most pressing task of modern society is to ensure sustainable development based on inclusive economic growth. In this regard, the importance of social and socially oriented entrepreneurship in achieving the Sustainable Development Goals is increasing. Scientific research discusses various aspects of the phenomenon of social entrepreneurship. The least developed in the applied aspect is the issue of the effectiveness of social entrepreneurship and its assessment. The purpose of the study is to determine the conceptual foundations of the ecosystem approach to assessing the effectiveness of socially oriented entrepreneurship to improve the sustainability of the socio-economic development of regions.

The methods include bibliographic analysis, modeling and statistical analysis. Bibliographic analysis revealed the need to distinguish between external and internal efficiency of social entrepreneurship. Modeling allows this to be implemented based on the ecosystem approach. Statistical analysis revealed that social entrepreneurship develops in rural areas much more slowly than in cities. Such imbalance cannot contribute to sustainable growth of regions in Kazakhstan.

The results include literature analysis and identification of current research areas in the field of social entrepreneurship effectiveness assessment. The need to develop a social entrepreneurship ecosystem at the regional level is substantiated. The structure of the regional ecosystem as a complex institutional system is developed. The role of the state in the formation of this ecosystem is characterized. The types of ecosystem resources that determine internal efficiency are substantiated. The definition of the effectiveness of socially oriented entrepreneurship is formulated. An algorithm for assessing the effectiveness of socially oriented entrepreneurship has been developed The ecosystem approach allows classifying social entrepreneurship into non-profit and commercial, taking into account not only external but also internal parameters, such as inclusiveness, density of connections and synergy. A statistical analysis of social entrepreneurship in Kazakhstan in the regional context is carried out.

The findings highlight the need to develop socially oriented entrepreneurship as a key element of an inclusive economy for sustainable socio-economic development of regions. When developing public policy aimed at achieving sustainable development goals, one should rely on the concept of social entrepreneurship and its ecosystem, as well as on assessing its effectiveness.

Key words. sustainable growth, socialization, inclusion, social impact, effectiveness of social entrepreneurship, regional ecosystem model.

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Әлеуметтік бағытталған кәсіпкерліктің тиімділігін бағалаудағы экожүйелік тәсілі

Қазіргі қоғамның ең өзекті міндеті – инклюзивті экономикалық өсуге негізделген тұрақты дамуды қамтамасыз ету. Осыған байланысты Тұрақты даму мақсаттарына қол жеткізуде әлеуметтік және әлеуметтік бағытталған кәсіпкерліктің маңызы артып келеді. Ғылыми зерттеулерде әлеуметтік кәсіпкерлік феноменінің әртүрлі аспектілері қарастырылады. Қолданбалы аспектіде ең аз дамығаны – әлеуметтік кәсіпкерліктің тиімділігі және оны бағалау мәселесі.

Зерттеудің мақсаты – аймақтардың әлеуметтік-экономикалық дамуының тұрақтылығын арттыру үшін әлеуметтік-бағдарланған кәсіпкерліктің тиімділігін бағалаудың экожүйелік тәсілінің тұжырымдамалық негіздерін анықтау.

Әдістерге библиографиялық талдау, модельдеу және статистикалық талдау жатады. Библиографиялық талдау әлеуметтік кәсіпкерліктің сыртқы және ішкі тиімділігін ажырату қажеттілігін анықтады. Модельдеу мұны экожүйелік тәсіл негізінде жүзеге асыруға мүмкіндік береді. Статистикалық талдау әлеуметтік кәсіпкерліктің қалаларға қарағанда ауылдық жерлерде әлдеқайда баяу дамып келе жатқанын көрсетті. Мұндай теңгерімсіздік Қазақстандағы тұрақты аймақтық өсуге ықпал ете алмайды.

Нәтижелер әдебиеттерді талдауды және әлеуметтік кәсіпкерліктің тиімділігін бағалау саласындағы қазіргі зерттеу бағыттарын анықтауды қамтиды. Өңірлік деңгейде әлеуметтік кәсіпкерліктің экожүйесін дамыту қажеттілігі негізделген. Күрделі институционалдық жүйе ретінде аймақтық экожүйенің құрылымы әзірленді. Бұл экожүйені қалыптастырудағы мемлекеттің рөлі сипатталады. Ішкі тиімділікті анықтайтын экожүйе ресурстарының түрлері негізделген. Әлеуметтік-бағдарланған кәсіпкерліктің тиімділігінің анықтамасы тұжырымдалған. Әлеуметтік бағытталған кәсіпкерліктің тиімділігін бағалау алгоритмі әзірленді. Экожүйелік көзқарас тек сыртқы ғана емес, сонымен қатар инклюзивтілік, байланыстардың тығыздығы және синергетика сияқты ішкі параметрлерді ескере отырып, әлеуметтік кәсіпкерлікті коммерциялық емес және коммерциялық болып жіктеуге мүмкіндік береді. Қазақстандағы әлеуметтік кәсіпкерлікке аймақтық тұрғыдан статистикалық талдау жасалды.

Қорытындылар аймақтардың тұрақты әлеуметтік-экономикалық дамуы үшін инклюзивті экономиканың негізгі элементі ретінде әлеуметтік-бағдарланған кәсіпкерлікті дамыту қажеттілігін атап көрсетеді. Тұрақты даму мақсаттарына қол жеткізуге бағытталған мемлекеттік саясатты әзірлеу кезінде әлеуметтік кәсіпкерлік тұжырымдамасына және оның экожүйесіне, сондай-ақ оның тиімділігін бағалауға сүйену керек.

Түйін сөздер: тұрақты өсу, әлеуметтену, инклюзия, әлеуметтік әсер, әлеуметтік кәсіпкерліктің тиімділігі, аймақтық экожүйе моделі.

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Экосистемный подход к оценке эффективности
социально ориентированного предпринимательства

Наиболее актуальной задачей современного общества является обеспечение устойчивого развития на основе инклюзивного экономического роста. В связи с этим возрастает значимость социального и социально ориентированного предпринимательства в достижении Целей устойчивого развития. В научных исследованиях обсуждаются различные аспекты феномена социального предпринимательства. Наименее разработанным в прикладном аспекте является вопрос об эффективности социального предпринимательства и ее оценке.

Целью исследования является определение концептуальных основ экосистемного подхода к оценке эффективности социально ориентированного предпринимательства для повышения устойчивости социально-экономического развития регионов.

Методы включают библиографический анализ, моделирование и статистический анализ. Библиографический анализ выявил необходимость разграничения внешней и внутренней эффективности социального предпринимательства. Моделирование позволяет это реализовать на основе экосистемного подхода. Статистический анализ выявил, что социальное предпринимательство развивается в сельской местности значительно медленнее, чем в городах. Такая несбалансированность не может способствовать устойчивому росту регионов в Казахстане.

Результаты включают анализ литературы и определение актуальных направлений исследований в области оценки эффективности социального предпринимательства. Обоснована необходимость развития экосистемы социального предпринимательства на региональном уровне. Разработана структура региональной экосистемы как сложной институциональной системы. Охарактеризована роль государства в формировании этой экосистемы. Обоснованы виды экосистемных ресурсов, определяющих внутреннюю эффективность. Сформулировано определение эффективности социально ориентированного предпринимательства. Разработан алгоритм оценки эффективности социально ориентированного предпринимательства. Экосистемный подход позволяет классифицировать социальное предпринимательство на некоммерческое и коммерческое, учитывая не только внешние, но и внутренние параметры, такие как инклюзивность, плотность связей и синергия. Проведен статистический анализ социального предпринимательства в Казахстане в региональном разрезе.

Выводы подчеркивают необходимость развития социально ориентированного предпринимательства как ключевого элемента инклюзивной экономики для устойчивого социально-экономического развития регионов. При разработке государственной политики, направленной на достижение целей устойчивого развития, следует опираться на концепцию социального предпринимательства и его экосистемы, а также на оценку его эффективности.

Ключевые слова: устойчивый рост, социализация, инклювизация, социальное воздействие, эффективность социального предпринимательства, региональная экосистемная модель.

Introduction

In modern conditions, the main task of society is to ensure sustainable development based on inclusive economic growth. To achieve this goal, it is necessary to find and maintain a balance between economic, environmental and social development. The need to identify these opportunities and determine ways to implement them has become a priority area of socio-economic research.

In this context, the relevance of studying the development of socially oriented entrepreneurship has increased, which, in our opinion, is the basic form of manifestation of the socialization of the economy as the first stage of socialization of the overall economic system, focused on human development, with the goal of increasing the level of well-being and quality of life of the population. To properly understand the role of social entrepreneurship, it is important to distinguish its types, based on the basic principle of entrepreneurial activity, which is to ensure its self-sufficiency. This approach allows us to consider the conditionality of including non-profit organizations (NPOs) in the field of social entrepreneurship and realize that social entrepreneurship itself is realized through the activities of socially oriented entrepreneurs. In this regard, the significant potential of social entrepreneurship in the literature is associated with the development of its ecosystem. However, most studies focus on the ecosystem of a single enterprise and do not consider the opportunities that arise in the context of sustainable development at the level of the regional ecosystem of socially oriented entrepreneurship. An important aspect of this approach is the question of the effectiveness of socially oriented entrepreneurship and methods for its assessment. The relevance of the research question is due to the fact that at this stage in the literature, in our opinion, a one-sided approach to studying the problems of measuring and assessing the results of social entrepreneurship through the prism of its social impact predominates. However, in our opinion, for the successful development and quantitative growth of social entrepreneurs, especially those who are focused on the principle of self-sufficiency, it is important, first, also evaluate the efficiency of business processes of their internal activities, and secondly, to take into account their involvement in the social ecosystem. This means the need to evaluate entrepreneurship taking into account the integration resources and synergies that it provides. The approach we propose to the study of issues of measuring and assessing the effectiveness of socially oriented entrepreneurship determines the theoretical and practical significance of the study.

The purpose of the article is to substantiate the application of the ecosystem approach in assessing the effectiveness of socially oriented entrepreneurship that contributes to the sustainable socio-economic development of regions.

The following tasks have been defined:

- analyze approaches to determining the effectiveness of socially oriented entrepreneurship;

- identify limitations of existing approaches to measuring and assessing social impact;

- disclose the content of the concept of the ecosystem approach in assessing the effectiveness of social entrepreneurship;

- argue the need to apply the ecosystem approach to assessing the effectiveness of socially oriented entrepreneurship at the regional level;

- develop an algorithm for assessing the effectiveness of socially oriented entrepreneurship;

- analyze the state and features of the development of socially oriented entrepreneurship in the region of Southern Kazakhstan;

The working hypotheses of the study suggest that the introduction of an ecosystem approach to assessing the effectiveness of social entrepreneurship at the macroeconomic level of regions will create clear guidelines for government development programs, popularize this area among various social groups and involve them in the values and processes of social entrepreneurship.

The object of the study is the activities of socially oriented entrepreneurs in the region of Southern Kazakhstan

The scientific significance of the work lies in the fact that it fills a gap in the Russian scientific literature concerning the development of conceptual aspects of evaluating the effectiveness of socially oriented enterprises, organizations and communi-

ties. The work takes into account both the internal effectiveness of the subjects and their involvement in the ecosystem of social entrepreneurship, which allows participants to create new resources through inclusivity and synergy. This contributes to high sustainability of development both at the micro level and at the regional level.

The practical significance of this study lies in its potential to enhance the development of socially oriented entrepreneurship and its ecosystem at the regional level. This involves the development of a systematic approach to assessing the effectiveness of subjects of socially oriented activities within the regional ecosystem, an algorithm for assessing the effectiveness of socially oriented entrepreneurship.

Literature review

Social aspects of entrepreneurial activity, their measurement and assessment have become an important area of research in the field of sustainable development of society. There has been an increased interest in the role of business in society, in social and high impact projects, and in knowledge of social impacts and has become the subject of research across sectors, government, the environment and companies.

Today, the world faces more challenges than ever before. Almost two-thirds of all countries face inequality (Marginson, 2017), which causes growing social inefficiency. The relevance of these issues determines the growing popularity of the Sustainable Development Goals in society. This is accompanied by the development of directions and an increase in the amount of scientific research. It is important to note that in this area a lot of attention is paid to environmental problems of sustainable development and the technological aspects of their solution. although researchers recognize that social and institutional conditions are key aspects of these decisions (Ferreira Gregorio, 2018). The Circular economy (CE) is closely linked to the concept of sustainable development, offering ways of practical implementation at the environmental and economic levels. (Merli, 2018). At the same time, social and institutional aspects are considered only superficially by scientists. The greatest attention is paid to cleaner production methods, which are aimed at reducing environmental impacts and waste generation throughout the product lifecycle, as well as optimizing productivity and process efficiency. At the same time, CE research can focus on strategies for social and institutional change that can transform

production and consumption processes at a higher level. Conversely, CE research can place greater emphasis on strategies for social and institutional change that can transform the bottom-up process of production and consumption. An analysis of the literature shows that in the last ten years, considerable attention of researchers has focused on the issues of measuring and evaluating the social impact of social entrepreneurship (Kühnen, 2018), (Kah, 2020). During this period, about 71% of all works on this topic were published, while in 2019 more than 93 publications were published, which is 10% of the total number of publications (Alomoto, 2022). Non-profit organizations are under increasing pressure to demonstrate their social influence, which has led to active research in this area. In particular, in an article by Arvidson et all. (2014) examines how non-profit organizations in the UK adapt to the requirements of social impact assessment by external resource providers, which require proof of how effectively resources are used and what results organizations achieve.

After the global financial crisis, the concept of social impact has become more widely used, due to the increased interest of private entrepreneurs and consumers in the social aspects of sustainable development, such as ecology, climate change, the environmental situation, employment, working conditions and gender inequality.

The term «social impact» was first coined at a seminar at Yale University in 1969 on the ethical responsibility of institutional investors. The workshop, led by James Tobin, explored the social and environmental aspects of investing beyond purely financial indicators. The following year, the United States National Environmental Policy Act (NEPA) of 1970 introduced practices and procedures known as Social Impact Assessment (SIA). (The National Environmental Policy Act (NEPA): The Complete Guide, 1970, by Sarah Tancredi).

The SIA was a legal requirement to systematically consider the potential (negative) socio- economic impacts of large-scale industrial land use. This government-required assessment was intended to raise awareness of the environmental degradation of real estate development and the potential socio-economic costs associated with the displacement of people and activities"

Later, the World Bank and the International Monetary Fund began to implement socio- economic assessment and impact assessment reporting for their development projects. This was done in order to assess how their investments and efforts to strengthen technical capacity affect local communi-

ties. Since the 1990s, methods for assessing social impacts began to be developed.

The analysis of scientific literature demonstrates a variety of approaches to the study of this problem, reflected in terms such as «social return on business», «corporate social responsibility», «social indicators», «impact investing», «social indicators», and «social return on investment» (Millar, 2013), (Nicholls, 2017), (Kah, 2020). These concepts aim to identify how investments can create social value. Methods of measuring «social impact» are also discussed, which cover three aspects of sustainability: social, economic and environmental. It is important to note that the size of the firm requires an approach that includes broad participation in the selection of indicators for assessing social impact in order to ensure order and transparency of practices in this area.

Dr. Robin Klingler-Wydra expresses concern that «the rise of 'social impact' without sufficient common understanding of what it means and how to measure it risks widespread 'impact dilution' whereby the impact label is assigned to routine activities..» (Robyn Klingler-Vidra, 2019)

This broad interpretation of the concept of social impact has led to the fact that today more than 150 different methods have already been developed.

Thus, in order to assess the results of social entrepreneurship, it is necessary to substantiate a conceptual approach that, taking into account all the diversity of aspects and directions, would allow us to determine a practical algorithm for assessing the effectiveness of the activities of social entrepreneurship entities.

In our opinion, great potential for the development of the effectiveness of social entrepreneurship lies in various aspects of the concept of the ecosystem model (Trabskaia, 2023), (Christopoulos, 2023), (Dzhulaeva, 2020), (Dzhulaeva, 2024).

Methodology

Our study of the potential of social entrepreneurship to ensure the sustainable development of the region demonstrates that its effectiveness depends on the development of a regional ecosystem organized according to the network principle and characterized by inclusiveness and synergy. In this regard, it is important to consider approaches to assessing the effectiveness of socially oriented entrepreneurship at the regional level.

The purpose of the article is to develop the conceptual foundations of an ecosystem approach to assessing the effectiveness of socially oriented entrepreneurship at the regional level, which will

allow creating an algorithm for its practical assessment. This will expand the possibilities of realizing the potential of socially oriented entrepreneurship and will contribute to increasing the sustainability of socio-economic development of the regions.

The following tasks are highlighted in the study:
- establish a clear definition of the effectiveness of socially oriented entrepreneurship;
- identify the limitations of existing approaches to measuring and evaluating social impact;
- to argue for the need to apply an ecosystem approach to assess the effectiveness of socially oriented entrepreneurship at the regional level;
- to develop an algorithm for assessing the effectiveness of socially oriented entrepreneurship;
- to analyze the state and features of the development of socially oriented entrepreneurship in Kazakhstan.

The hypothesis of the study suggests that the introduction of an ecosystem approach to assessing the effectiveness of socially oriented entrepreneurship at the macroeconomic level of the regions will ensure the creation of clear guidelines for the development of government programs aimed at the development of social entrepreneurship, as well as for the effective management of its processes.

The main sources for the literary review included articles published in journals recommended by the Committee on Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, as well as in publications indexed in the Scopus and RSCI databases.

Statistical data of the Agency of the Republic of Kazakhstan on Statistics on the state of social entrepreneurship in the country and in the region of Southern Kazakhstan were used for empirical research. Statistical analysis allowed us to analyze the current state of socially oriented entrepreneurship in Kazakhstan

Information from the Subcommittee on the Development of Social Entrepreneurship at the National Enterprise "Atameken", which is engaged in communication between government agencies and social entrepreneurs, as well as collecting data on development problems from social entrepreneurs throughout Kazakhstan, was also involved. Additionally, data from the state register of social entrepreneurs were used.

The research material from the presented sources ensures the reliability of the conclusions and research methods.

The research used methods of bibliographic analysis, modeling and statistical analysis. The bibli-

ographic analysis was used to study the current state of scientific developments in the field of evaluating the effectiveness of social entrepreneurship, which revealed the need to distinguish between the external and internal effectiveness of social entrepreneurship entities within the framework of the ecosystem approach. The modeling method allowed us to apply the ecosystem approach to develop an algorithm for assessing the effectiveness of socially oriented entrepreneurship. The study proposes to distinguish between external and internal assessment of the effectiveness of social entrepreneurship. External assessment of effectiveness is actively developed in the scientific literature in the form of an assessment of the social impact of social entrepreneurs on society. At the same time, in our opinion, studies do not pay due attention to the internal assessment of the effectiveness of their activities, which is due to the "sociality" of this segment of entrepreneurs. Meanwhile, the analysis of the activities of these entities through the prism of subjective or internal effectiveness leads to the need to consider its assessment as a combination of market and ecosystem approaches. Subjects of social entrepreneurship assess their self-sufficiency and profitability within the framework of the market approach. At the same time, as subjects of the social entrepreneurship ecosystem, they assess the level of their involvement in this ecosystem, which allows them to create and consume new resources generated by the ecosystem, resources of inclusiveness and synergy, which have virtually infinite potential. .This contributes to high sustainability of development both at the micro and regional levels. The statistical analysis made it possible to analyze the current state.

To study the problem, the following stages of the study were implemented:

- conceptual approaches to assessing the effectiveness of social entrepreneurship were studied;

- the need for an ecosystem approach to determining the effectiveness of socially oriented entrepreneurship was substantiated;

- an ecosystem approach was applied to develop an algorithm for assessing the effectiveness of socially oriented entrepreneurship;

- it was substantiated that the role of the state in the formation of a regional ecosystem is key;

- an analysis of the development of social entrepreneurship in Kazakhstan was conducted;

- the advantages and disadvantages of instruments for financing the activities of entities of socially oriented entrepreneurship were considered from the point of view of the effectiveness of these entities.

Results and discussion

An analysis of the scientific literature shows that most studies focus on the development of an optimal methodology for assessing the social impact of social entrepreneurship. This activity is seen as necessary to demonstrate its usefulness and importance in achieving the Sustainable Development Goals (SDGs). For example, the following definition can often be found on official websites: «Social entrepreneurship is a newly emerged sector of the economy. The legislation provides for measures of state support, including ensuring the availability of infrastructure to support social entrepreneurship, providing tax incentives, financial assistance, preferential rental of property, assistance in interregional cooperation and the search for business partners».

However, in our opinion, the approach according to which social entrepreneurship is considered as a separate type of activity for which it is necessary to determine a «niche» in the economic system is methodologically erroneous. A conceptual approach to determining the essence and role of this phenomenon allows us to define social entrepreneurship as a systemic feature of an emerging new economic system – the social economy. Professor O.Yu. Mamedov, revealing the true significance of the inclusive development of society, emphasized that «the process of socialization means not only the movement of the modern market to a different form of society, not only its transition to a qualitatively new state. It is significantly broader, representing an endless process of creating diverse prerequisites and the most effective incentives for self-realization of a person's capabilities, ensuring a strategy for his free and harmonious development». (Mamedov, 2017). Professor U.Zh. Aliyev, within the framework of a systematic approach to social economics, considers socialization as the highest form of humanization and institutionalization of human activity, covering material, intellectual and spiritual aspects. He suggests that a post-market economy synthesizing elements of previous economic systems, from traditional to market, leads to the formation of a genuine social economy, which he calls socionomics or humanistic economics (Aliyev, 2001).

In modern conditions, in the process of changing the relationship between economic and social in its dual essential characteristics, practical socialization of the economy occurs. The desire to achieve balance reflects the direction of the evolutionary pro-

cess of gradual transition from a market economic system to the next, more highly developed type of economic system – a social economic system. The essence of the changes taking place is deeply revealed, in our opinion, when defining the concept of social economy in conjunction with the concept of inclusive growth. Defining the social economy as a new evolutionary stage in the development of the economic system, O.Yu. Mamedov argued that the novelty of its content lies in the inclusivity of the entire system of economic relations. The developed state of a socialized economy is determined by the achievement of inclusiveness – «the most humane organization of the human community», the task of which is to ensure the transition to sustainable development of society through the development of human resources. The inclusiveness of a socialized economy creates its developed state – a «personalized economy», that is, an economy built taking into account the creative characteristics of each worker."(Mamedov, 2017).

Thus, socialization and inclusivity change the content of economic growth, which occurs through the genuine development of human capabilities, through the transition from financial and economic criteria to criteria for the development of human resources. This type of economic growth, socially inclusive growth, creates conditions for the manifestation of creativity as the realization of the personal potential of each participant in production, regardless of social status.

These processes necessitate the development of social entrepreneurship as the main form of organizing activities in the social economy. The powerful potential of social entrepreneurship is due to the fact that in the process of socialization of subjects, new system resources arise: inclusion and synergy. The peculiarity of these resources of the emerging socially inclusive economy is that they have an almost unlimited potential to influence the result of economic, entrepreneurial, and social activities of society due to their human origin. This is what distinguishes them from the limitations of «classical» resources in the form of natural, material, labor, financial, and information resources.

Therefore, today, in the context of the deepening crisis of the market economic system, social entrepreneurship is already acting not only as a way to solve individual social problems that arise in various local communities, but as a basic form of development of a socially inclusive economic system.

This understanding is of critical importance for the practical development of social entrepreneurship. The analysis of the mechanisms of practical implementation of social entrepreneurship emphasizes the need to distinguish between two forms of its implementation: non-profit organizations (NPOs) and socially oriented entrepreneurship. NGOs, representing one of the forms of social entrepreneurship, focus on fulfilling a social mission and do not always take into account the socio-economic efficiency of their activities. This limits the full potential of social entrepreneurship. Unlike NGOs, socially oriented entrepreneurship not only solves social problems, but also strives to achieve socio-economic results and improve the efficiency of its work. In the article devoted to the conceptual aspects of the ecosystem of social entrepreneurship, the following definition is proposed: socially oriented entrepreneurship is a key form of socialization and inclusivity of the modern economy, contributing to its sustainable development through achieving both social efficiency of entrepreneurial activity and economic profitability. Based on the considered conceptual aspects of the social entrepreneurship ecosystem, the following definition is proposed: "socially oriented entrepreneurship is a key form of socialization and inclusiveness of the modern economy, contributing to its sustainable development by achieving both social and economic efficiency of entrepreneurial activity." For the sustainable development of a socially inclusive economy based on the successful growth of socially oriented entrepreneurship, it is necessary to form an ecosystem by expanding resource availability based on the inclusion of synergistic and inclusive resources, as well as through the development of network interconnection and coordination of the activities of ecosystem entities that ensure its self-development. «An innovation ecosystem represents such a «dense» level of relationships between participants in the innovation process that creates a synergistic effect» (Dzhulaeva, 2020). To justify the importance of the development of the ecosystem, it is necessary to clarify the difference between the concepts of «ecosystem» and «infrastructure». The fact is that the question of the need to develop relationships is not new either in theory or in practice. The need for infrastructure development, which is also aimed at developing relationships between various areas, is still formulated in the literature and in government development programs today. The question arises: why do we need an ecosystem when there is an infrastructure that includes many elements of the ecosystem. The point is that it is the ecosystem that creates such a «dense» level of interconnections that turns into a synergetic resource. Such a transfor-

mation of interconnections is achieved only under conditions of a high degree of inclusion, cooperation and collaboration of ecosystem participants. An inclusive resource, and subsequently a synergistic resource, are not developed at the infrastructure level. Thus, an ecosystem created as a network of participants for the joint creation of social value on the principle of inclusion and synergy has a high potential for sustainable development in conditions of high uncertainty. Moreover, it is important to consider the ecosystem of social entrepreneurship at both the microeconomic and macroeconomic levels. At the micro level, the ecosystem encompasses both individual and collective forms of enterprises, whereas at the macroeconomic level it is studied in the context of the region. There are many studies in the economic literature on enterprise ecosystems. However, there is a gap in the study of socially oriented entrepreneurship ecosystems at the regional level. Most research focuses either on the level of an individual social entrepreneur or on the level of a social enterprise, missing the broader social, cultural and economic context in which social entrepreneurship takes place. The regional ecosystem of social entrepreneurship is a complex institutional system that is formed not only through interaction between the agents of the system, but also influences the nature of these interactions. This feature is due to the many functions of the state as a regulating and stimulating entity in the process of forming network relations and interconnection models at the level of the regional ecosystem of social entrepreneurship.

Results

The ecosystem of socially oriented entrepreneurship at the regional level is the basis of its sustainable development and includes the entire range of institutions that form the subjective identity of the region. The relevance of studying such an aspect of social entrepreneurship ecosystems as its design at the regional level is due to the need to expand institutional opportunities for the development of socially oriented entrepreneurship. This is ensured by the numerous functions of the state as a regulating and stimulating entity in the processes of building a network of relationships, models of their relationships at the level of the regional ecosystem of socially oriented entrepreneurship.

The regional ecosystem of socially oriented entrepreneurship is a complex institutional system.

Table 1 – Key characteristics of social entrepreneurship in the regional ecosystem

Key characteristics of social entrepreneurship in the regional ecosystem		
	NGO-form of social entrepreneurship	Socially oriented entrepreneurship
Mission	Mitigation or solution of local social problems	Development of an inclusive society
Target	Creating Social Value	Ensuring self-sufficiency and profit while creating social value
Methods	Methods of state subsidies, provision of tax benefits, cheap loans, methods of charitable activities, volunteering, social design	Entrepreneurial methods of organizing and conducting activities, methods of social design, methods of charitable activities, methods of volunteering
Traditional Resources	s social entrepreneurs, volunteers; s government funding; s grants for development; s unsecured loans; s donations; s social help.	s Social entrepreneurs, employees; s Starting capital (personal savings, unsecured loans, donations, assistance).

Key characteristics of social entrepreneurship in the regional ecosystem		
	NGO-form of social entrepreneurship	Socially oriented entrepreneurship
Regional ecosystem resources	Inclusive resources: s human resources, including employees from socially vulnerable groups (for example, SPSS); s information support platforms provided by regional authorities; s regional centers providing legal assistance to social entrepreneurship; s regional centers that provide information and educational support for social entrepreneurship; s association of Social Entrepreneurship at the regional level. Synergistic resources: s funding for the regional network, including fundraising and charitable foundations; s a network of volunteers at the regional level; s regional networks for product promotion and sales, such as interesting communities and platforms.	Inclusive resources: s government training programs in the field of social entrepreneurship. s information platforms provided by regional authorities. s regional centers providing legal assistance to social entrepreneurs. s regional centers offering information and educational support for social entrepreneurship. s regional centers specializing in the rehabilitation and rehabilitation of employees from socially vulnerable groups. s associations of social entrepreneurship at the regional level. s regional employment centers for representatives of socially vulnerable groups. Synergistic resources: s volunteer networks at the regional level. s infrastructure for production and development within the regional network, including centers, acceleration programs, platforms, incubators, clusters and clubs. s financial sources for the regional network, including crowdsourcing, fundraising, impact investing and charitable foundations. s regional networks for product promotion and marketing, such as specialized communities and platforms.
Ecosystem resources of the subject	Inclusive resources: s the human capital of the organization, including employees from socially vulnerable groups (SSP); s network information resources. Synergistic resources: s the number of volunteers in the network; s local volunteer networks; s production infrastructure within the network, such as platforms and clubs; s funding through online sources, including charities and fundraising campaigns; s networks that promote and sell products, including specialized communities and platforms.	Inclusive resources: s human resources of the enterprise, consisting of hardworking employees representing socially vulnerable groups of the population (SSP); s information networks of the enterprise. Synergistic resources: s the total number of volunteers; s local volunteer networks; s the infrastructure of the production network, including platforms and clubs; s financing through network mechanisms such as crowdsourcing, fundraising and charitable foundations; network resources for the promotion and sale of products, including specialized communities and platforms.
Result Internal performance assessment (Financial and economic result)	100% utilization of development grants and donations	s achieving financial independence for socially oriented business entities; s increase in wages for employees from socially vulnerable groups; s improvement in labor productivity among employees from socially vulnerable groups; s expansion in the workforce drawn from socially vulnerable groups; growth in the volunteer base.

Key characteristics of social entrepreneurship in the regional ecosystem		
	NGO-form of social entrepreneurship	Socially oriented entrepreneurship
Result External performance assessment (Social result, social impact)	Mitigating or solving a local or individual social problem	s reducing the unemployment rate among people from the category of socially vulnerable groups at the local and regional levels, introducing inclusive principles into business practice, attracting employees from this category to jobs in organizations; s the growth in the volume of goods and services consumed by citizens from socially vulnerable groups; s an increase in the number of socially oriented business entities; s increasing the activity of volunteer initiatives; s reduction of the number of unemployed among persons from the category of socially vulnerable groups; reducing the crime rate.
Note – Compiled by the authors based on sources 17, 21		

The use of an ecosystem approach allows us to develop an algorithm for assessing the effectiveness of socially oriented entrepreneurship.

The potential for the effectiveness of socially oriented entrepreneurship can be fully realized provided that a regional ecosystem is developed. In Kazakhstan, this task can only be solved with the active participation of the state. Historically, in the development of social entrepreneurship in Kazakhstan, «two stages are conventionally distinguished. The first stage is associated with the activities of non-governmental organizations (NGOs), which began to develop commercial areas in this area in the 2000s. The second stage (approximately from 2020) is characterized by the involvement of public opinion in the problems of social entrepreneurship».

In recent years, in the context of implementing sustainable development goals, the state has been actively creating legal and institutional conditions aimed at developing social entrepreneurship. In accordance with the Law of the Republic of Kazakhstan dated June 24, 2021 No. 52-VII, from July 6, 2021, the Entrepreneurship Code is supplemented by a new chapter 6-1 "Social Entrepreneurship", which defines social entrepreneurship as the entrepreneurial activity of social entrepreneurship entities that contribute to solving social problems of citizens and society, carried out in accordance with certain conditions. Social entrepreneurship entities are individual entrepreneurs and legal entities (with the exception of large business entities) included in the register of social entrepreneurship entities. Four categories

are legislatively established in determining the status of "social entrepreneur".

The institutional support for social entrepreneurship is the Register of Social Entrepreneurs, which is an electronic database «containing information on individual entrepreneurs and legal entities that are subjects of social entrepreneurship».

An analysis of the table data allows us to calculate that in the regions of Southern Kazakhstan the number of social entrepreneurs is only 15% of the total number in the country, while it is important to note that this is the most densely populated region of the country, and its population at the beginning of August 2023 was 10,120,325 people. Moreover, the number of social entrepreneurs in rural areas is significantly less than in cities. Such an imbalance cannot contribute to sustainable growth of the region.

As the analysis of the regional ecosystem of socially oriented entrepreneurship shows, the role of the state in the formation of the regional ecosystem is key.

According to Order No. 130 of the Ministry of National Economy of the Republic of Kazakhstan dated June 30, 2023, the Rules for Supporting Initiatives for the development of social Entrepreneurship provided by government agencies, national holdings, national development institutions and other organizations were approved. In accordance with this order, the Rules regulate the procedure for providing state support to social entrepreneurship within the framework of article 20 of the Entrepreneurship Code of the Republic of Kazakhstan. The purpose of these rules is to support initiatives aimed at developing social entrepreneurship.
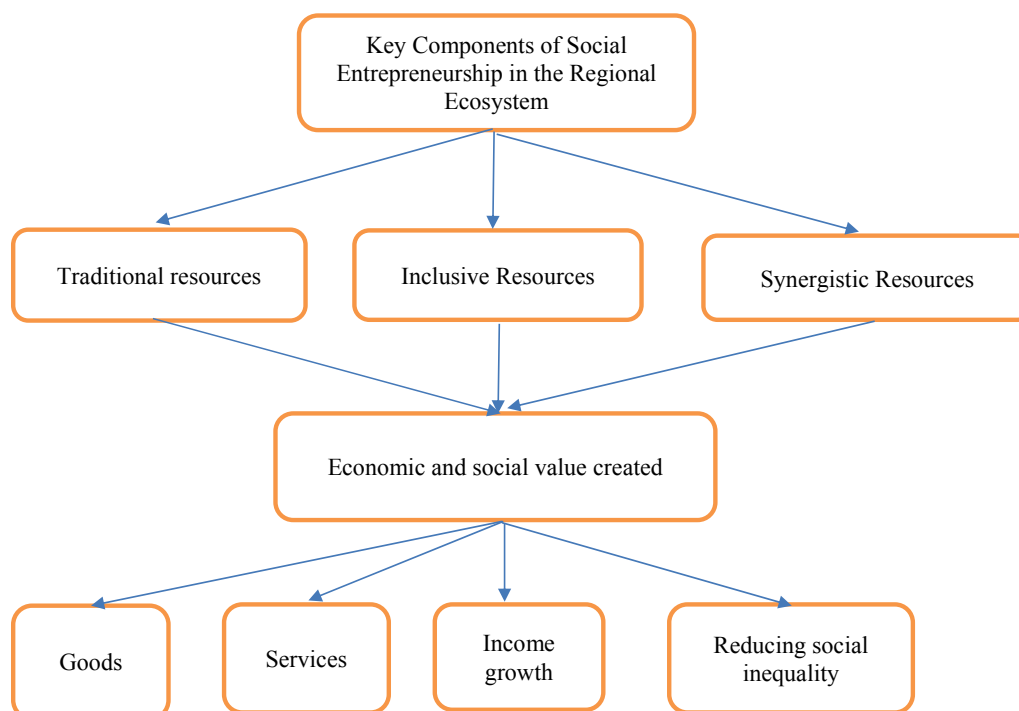
Figure 1 – Algorithm for assessing the effectiveness of socially oriented
entrepreneurship based on the ecosystem approach
Note – complied by the authors

Table 1 – Number of registered social entrepreneurs by region

	Regions	Total	In the city	In villages
	Republic of Kazakhstan	**166**	**149**	**17**
	Abay region	3	3	-
	Akmola region	2	1	1
	Aktobe region	11	8	3
	Almaty	6	6	-
	Astana	45	45	-
	Atyrau region	4	3	1
	West Kazakhstan region	25	24	1
	Zhambyl region.	1	1	-
	Zhetysu region	1	1	-
	Kostanay region	19	18	1
	Kyzylorda region	7	6	1
	Mangistau region	10	6	4
	Pavlodar region	6	5	1
	North Kazakhstan region	7	7	-
	Turkestan region	4	-	4
	East Kazakhstan region	8	8	-
	Shymkent	7	7	-
	Almaty region	-	-	-
	Karaganda region	-	-	-
	Ulytau region	-	-	-
Note – compiled by the authors from source Register of social entrepreneurship entities				

According to paragraph 7, state support for social entrepreneurship covers the following areas: development of infrastructure to support social entrepreneurship; provision of tax benefits; financial assistance, including subsidizing interest rates on loans issued by second-tier banks, as well as compensation for property leases; provision of state property for rent or leasing on preferential terms; informational, educational, advisory and methodological support; development through acceleration programs; promotion of interregional cooperation; provision of state grants for the implementation of socially significant projects.

The practical implementation of these areas of state support is expressed in a number of events that mark the beginning of development. Thus, on April 16-17, 2024, the first Kazakhstan Impact Forum was held in Almaty, dedicated to a phenomenon that is still unfamiliar in Kazakhstan – impact investing. The forum was organized by Impact Hub Almaty in partnership with Chevron, MOST Business Intelligence and Impact Europe. It was attended by representatives of the corporate sector, private investors, foundations, international organizations and impact entrepreneurs themselves. There is an understanding of the need create an ecosystem that promotes impact investments in Kazakhstan, where the market has just begun to take shape. Studies such as those conducted in the ZIRCON project in 2021 demonstrate that the prospects for the development of joint ventures are limited by several key factors. The main dependence of these enterprises is to receive government orders, whether direct or indirect. The sector is facing a shortage of resources that go beyond financial, including technological resources and conditions for production activities. The lack of strategic interests capable of stimulating active and creative participation in solving social problems is also significant (Organizers of Impact Forum Almaty, 2024).

Impact funds are beginning to play a significant role in the modern ecosystem. These funds act as a link between investors, entrepreneurs, philanthropists and international development institutions, creating a financial ecosystem and carrying out social assessments. For example, Impact Hub Almaty, which is part of the global Impact Hub network, which unites more than 100 hubs and 16 thousand participants on five continents, actively supports social entrepreneurship. Since its foundation in 2017, the foundation has supported more than 250 influential entrepreneurs across Kazakhstan through incubation, acceleration, mentoring and financial support programs. Currently, 60% of these entrepreneurs continue their activities, some of them participate in the acceleration program in partnership with Chevron. These enterprises represent a different model of economic activity that allows us to solve important social problems while simultaneously ensuring financial stability (Organizers of Impact Forum Almaty, 2024).

Collective financing platforms are also being developed in Kazakhstan. There are currently four licensed crowdfunding platforms – IKapitalist, Proportunity, InvestRoom and GoCrowd. From January 2020 to April 2023, 235 projects worth 10.6 billion tenge were financed through crowdfunding platforms, in which more than 900 investors participated (How collective financing is developing in Kazakhstan, 2024)

Thus, in the context of sustainable development, it is reasonable to consider the regional ecosystem model of socially oriented entrepreneurship as having the greatest potential for achieving the SDGs.

Thus, in the context of sustainable development, based on the essence of the phenomenon of socially oriented entrepreneurship, it is reasonable to consider the regional ecosystem model as having the greatest potential in achieving the SDGs.

For the practical implementation of this approach, it is important to determine how to measure and evaluate the effectiveness of socially oriented entrepreneurship.

An examination of the current literature reveals that the most relevant research focus in this area is the measurement and evaluation of social impact, which is increasingly recognized as a critical indicator of the effectiveness of social entrepreneurship. Notably, the academic discourse emphasizes that the need to quantify the social outcomes and effects of social entrepreneurship is primarily driven by the demands of governments, external stakeholders, and investors who seek to assess the social impact of their interventions. However, this perspective often overlooks the fact that social entrepreneurs themselves are in a difficult position. They are required not only to prove their value as a distinct form of enterprise by assessing their social impact on the external environment, but also to ensure internal operational effectiveness by focusing on the social returns and impact of their activities.

At present, the field of social entrepreneurship has made significant advances in the development of external measurement and assessment methods, particularly those focused on evaluating «social impact».

Table 2 – SWOT analysis of the prospects for the development of the regional ecosystem of socially-oriented entrepreneurship in Kazakhstan

S –strengths:	W – weaknesses:
- formation of public associations; - Associations of social entrepreneurs in the regions; - government funding of social entrepreneurship;assessing the necessity of fostering socially oriented entrepreneurship within the framework of sustainable development as an objective of public policy; - establishment of institutional frameworks includes the development of a state registry for social entrepreneurs and the establishment of a Subcommittee for Social Entrepreneurship Development within the Atameken National Chamber of Entrepreneurs; - establishing legal frameworks through the enactment of the "Law on Social Entrepreneurship" and the "Regulations for Implementing Support for Social Entrepreneurship Development Initiatives by Government Entities, National Holdings, National Development Institutions, and Other Organizations" (Registered with the Ministry of Justice of the Republic of Kazakhstan on July 5, 2023, No. 33040.	- weak level of financial literacy of social entrepreneurs weak development of relationships between social entrepreneurs and the business community, educational and scientific communities, and youth movements; - weak level of training and involvement of people with disabilities in social entrepreneurship; - poor development of the educational infrastructure of the regional ecosystem of socially oriented entrepreneurship: training centers for social entrepreneurs, accelerators, business incubators, online learning platforms; - at the regional level, "Social Entrepreneurship Roadmaps" have not been created to help social entrepreneurs who have decided to enter the Register; - weak information promotion of social entrepreneurship among young people, weak volunteer movement.inadequate development of the financial infrastructure within regional ecosystems for socially oriented entrepreneurship, including impact investing, crowdsourcing, and fundraising, represents a significant challenge. Additionally, barriers to bank lending further hinder progress. There is also a notable deficiency in the application of methodologies for assessing social impact and evaluating the effectiveness of social entrepreneurship entities.
O – possibilities:	T – threats:
- development of digital technologies for social entrepreneurship; - advancement of platform-based investment within the regional ecosystem of socially oriented entrepreneurship; - development of professional training centers for persons from the SUSN category; - advancement of impact investing within the regional ecosystem of socially oriented entrepreneurship; - attracting partners and sponsors from the business community and educational community; - development of social innovations in the field of socially oriented entrepreneurship; - development of infrastructure for training persons with disabilities.	- shortcomings and contradictions in the legislation regulating the field of social entrepreneurship; - existence of bureaucratic obstacles that dissuade social entrepreneurs; - rising prices for socially significant products and goods deterioration of the overall economic, environmental, and social conditions in the regions; - presence of corruption risks.
Note – compiled by the authors based on sources (Dzhulayeva, 2020), (Organizatory Impact Forum Almaty, 2024)	

In developing these studies, we proposed to distinguish between external and internal assessment of the effectiveness of social entrepreneurship. External assessment of effectiveness is actively developed in the scientific literature in the form of an assessment of the social impact of social entrepreneurs on society. At the same time, in our opinion, the "sociality" of this segment of entrepreneurs determines the lack of due attention to the internal assessment of their effectiveness. Meanwhile, internal assessment is of crucial importance for the success-ful and dynamic growth of social entrepreneurship. It is very important to understand that internal assessment is not limited to self-sufficiency and profitability of socially oriented entrepreneurship entities. Internal assessment should be considered as a combination of market and ecosystem approaches. Social entrepreneurship entities not only assess their self-sufficiency and profitability, but also the level of their involvement in the social entrepreneurship ecosystem, which allows them to create and consume new resources of inclusiveness and synergy,

which have virtually infinite potential. This contributes to high sustainability of development both at the micro and regional levels.

Without considering the industry-specific features of socially oriented entrepreneurship, we will highlight the main ecosystem indicators of the internal efficiency of subjects of socially oriented entrepreneurship.

The ecosystem approach allows us to consider the possibility of measuring and assessing the influence of a set of stakeholders on the internal efficiency of a socially oriented business entity, assessing the impact of inclusion and synergy on the growth of social entrepreneurship, as key factors in its scaling, quantitative growth and mass character.

Table 3 – Ecosystem model for assessing the internal efficiency of socially oriented entrepreneurship

Ecosystem resources of a subject of socially oriented entrepreneurship	Basic ecosystem indicators of internal efficiency of a socially oriented business entity
Inclusive Resources: - human resources, including employees from socially vulnerable segments of the population (SSP); - networked information resources; - volunteers. Synergistic Resources: - volunteer networks; - networked production infrastructure, including hubs, acceleration programs, platforms, and clubs; - network-based financial support, such as crowdsourcing, fundraising, impact investing, and various funds; networks for product promotion and sales, encompassing interest-based communities and online platforms.	- number of employees from the category of socially vulnerable segments of the population (SVSP):/ number of employees of a socially oriented business entity; - number of social networks of partner organizations / number of employees of a socially oriented business entity; - number of volunteers / number of employees of a socially oriented business entity; - the number of basic material resources accessed through the network (hubs, acceleration programs, platforms, clubs) / number of employees of a socially oriented business entity; - number of information resources accessed via the network (hubs, acceleration programs, platforms, clubs) / number of employees of a socially oriented business entity; - the amount of financial resources accessed through the fundraising network / the number of employees of a socially oriented business entity; - the amount of financial resources accessed through a network of investors (crowdsourcing) / the number of employees of a socially oriented business entity; - number of goods sold through the network (platform) of partners / number of employees of a socially oriented business entity; - the amount of financial resources accessed through a network of investors (impact investing) / the number of employees of a socially oriented business entity; - number of social networks of communities based on consumer interests / number of employees of a socially oriented business entity.

Note – compiled by the authors based on sources (Dzhulaeva, 2020), (Organizatory Impact Forum Almaty, 2024)

Conclusion

The research highlights that fostering sustainable socio-economic growth in regions necessitates the advancement of socially oriented entrepreneurship as a fundamental component of a socially inclusive economy. When formulating public policy to achieve the Sustainable Development Goals (SDGs) by engaging human resources, it is crucial to base strategies on a well- defined conceptual framework for socially oriented entrepreneurship and its ecosystem.

A central factor in enhancing socially oriented entrepreneurship is improving its effectiveness. Our findings suggest that developing a robust algorithm for evaluating the performance of socially oriented entrepreneurs requires a solid conceptual foundation. Current practices predominantly emphasize the measurement of social impact as a primary external indicator of social entrepreneurship's value to society. While assessing social impact is critical, for the effective advancement and growth of social enterprises, particularly those striving for self-sufficiency, it is essential to focus not only on external

outcomes but also on internal performance metrics. This includes evaluating the integration of these enterprises within the social entrepreneurship ecosystem, utilizing inclusivity resources, and leveraging synergies.

The methodology for internal assessment of a social entrepreneurship entity should incorporate not only conventional socio-economic indicators but also emerging resources related to inclusion and synergy within the ecosystem. Thus, our proposed ecosystem approach to evaluating social entrepreneurship effectiveness encompasses both traditional external assessments of social impact and internal evaluations guided by ecosystem indicators such as inclusivity, relationship density, and synergy.

Acknowledgement

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Мақаланы жариялау үшін ақы төлеу тәртібі мен күнін «Қазақ университеті» баспасы белгілейді және оны рецензенттер мен ғылыми редактор мақұлдағаннан кейін автор жасайды.

Мақала құрылымы: Бірінші бет: Бірінші жол – ҒТАХР нөмірі, мәтін беттің сол жақ шетімен тегістеледі, қаралау шрифт. Мақала автор(лар)ы – аты-жөнінің бірінші әріптері және тегі, жұмыс істейтін орны (аффилиация), қала, мемлекет, e-mail, ORCID ID – орыс, қазақ және ағылшын тілдерінде жазылады. Авторлар туралы ақпарат қалыпты шрифтті кіші әріптермен жазылып, беттің ортасында тегістеледі.

Мақала атауы (Тақырып) мақаланың мәні мен мазмұнын көрсетіп, оқырманның назарын аудару керек. Тақырып қысқа әрі ақпараттық, жаргондар мен аббревиатурасыз жазылуы тиіс. Тақырыптың орташа ұзындығы 5-7 сөз (кей жағдайда 10-12 сөз). Мақаланың тақырыбы орыс, қазақ және ағылшын тілдерінде берілуі керек. Тақырып қаралау шрифтті кіші әріптермен, беттің ортасымен тегістеледі. Аңдатпа көлемі – 150 сөзден кем емес, 300 сөзден артық емес орыс, қазақ, ағылшын тілдерінде жазылады.

Аңдатпа құрылымында келесі ақпарат міндетті түрде болуы керек: Зерттеу тақырыбы бойынша кіріспе сөз; Ғылыми зерттеудің мақсаты, негізгі бағыттары мен идеялары; Жұмыстың ғылыми және практикалық маңыздылығы бойынша қысқа ақпарат; Зерттеу әдістемесі бойынша қысқа ақпарат; Ғылыми зерттеудің негізгі нәтижелері, талдау және тұжырымдама; Жүргізілген зерттеу жұмысының маңыздылығы (аталған жұмыстың ғылымның сәйкес саласына енгізген үлесі); Жұмыс қорытындысының практикалық маңыздылығы.

Түйін сөздер/сөз тіркестері – орыс, қазақ, ағылшын тілдерінде 3-5 сөз аралығында.

Кіріспе келесіде берілген негізгі элементтерден тұрады: Таңдалған тақырыптың негіздемесі; тақырып өзектілігі мен зерттеу проблемалары. Таңдалған тақырыптың негіздемесінде алдыңғы зерттеушілердің тәжірибелері негізінде проблемалық жағдайдың (зерттеу жұмыстарының жоқтығы, жаңа зерттеу нысанының пайда болғаны және т.б.). бар екендігі айтылады. Тақырыптың өзектілігі аталған зерттеу нысанының қойылған сұрақтарға толық жауаптардың болмаған жағдайда, тақырыптың теориялық және практикалық маңыздылығы арқылы дәлелденіп жалпыға ортақ мүдде арқылы анықталады. Жұмыстың нысанын, пәнін, мақсаттарын, міндеттерін, тәсілдерін, әдістер, гипотезасын анықтау. Зерттеудің мақсаты тезисті дәлелдеумен, яғни зерттеу тақырыбын автор таңдаған аспектімен көрсетумен байланысты.

Әдебиеттерге шолу бөлімінде – зерттеу тақырыбы бойынша ағылшын тілінде шетелдік авторлардың іргелі және жаңа еңбектер (кемінде 15 жұмыс), оларды ғылыми үлесі тұрғысынан талдау, сондай-ақ сіздің мақалаңызда толықтырылған зерттеу кемшіліктері беріледі.

Әдістеме – материалдар мен жұмыс барысының сипаттамасынан, сондай-ақ қолданылатын әдістердің толық сипаттамасынан тұруы керек.

Нәтижелер мен Талқылау бөлімінде сіздің зерттеу нәтижелеріңізді талдауы және талқылауы беріледі. Зерттеу барысында алынған нәтижелер туралы қорытынды беру арқылы негізгі мәні айқындалады. Бұл мақаланың маңызды бөлімдерінің бірі болып саналады. Онда жұмысыңыздың нәтижелерінің талдауы және алдыңғы жұмыстармен, талдаулармен және тұжырымдамаларымен салыстыру арқылы сәйкес нәтижелерді талқылау беріледі.

Қорытынды – жұмыстың осы кезеңдегі нәтижелерін жалпылау және қорытындылау; автор алға қойған тұжырымның растығын және алынған нәтижелерді ескере отырып, ғылыми білімнің өзгеруі туралы автордың қорытындысын растау. Қорытынды абстрактілі болмауы керек, оларды ұсыныстарды немесе одан әрі жасалатын жұмысты сипаттай отырып белгілі бір ғылыми саладағы зерттеу нәтижелерін жалпылау үшін қолдану керек.

Пайдаланылған әдебиеттер тізімі немесе библиографиялық тізім жаратылыстану және техникалық бағыттарға кем дегенде 15 атаулардан тұрады, ал ағылшын тіліндегі жалпы атаулар саны 50%-дан кем болмауы керек. Егер сілтемелер тізімінде кириллицада берілген еңбектер болса, сілтемелер тізімін екі нұсқада ұсыну қажет: біріншісі – түпнұсқада, екіншісі – романизацияланған алфавитте (транслитерация – translit-online.ru).

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Порядок оплаты и стоимость за публикацию статьи устанавливается издательским домом «Қазақ университеті» и производится автором после одобрения рецензентами и научным редактором.

Структура статьи Первая страница: Первая строка – номер МРНТИ, выравнивание – по левому краю, шрифт – полужирный; Автор(ы) статьи – Инициалы и фамилия, ученая степень, звание, место работы (аффилиация), город, страна, e-mail, ORCID ID – на русском, казахском и английском языках. Сведения об авторах представляются обычным шрифтом строчными буквами, выравнивание – по центру;

Название статьи (Заголовок) должно отражать суть и содержание статьи и привлекать внимание читателя. Название должно быть кратким, информативным и не содержать жаргонизмов или аббревиатур. Оптимальная длина заголовка – 5-7 слов (в некоторых случаях 10-12 слов). Название статьи должно быть представлено на русском, казахском и английском языках. Название статьи представляется полужирным шрифтом строчными буквами, выравнивание – по центру;

Аннотация объемом не менее 150 и не более 300 слов на русском, казахском и английском языках. Структура аннотации включает в себя следующие обязательные пункты: Вступительное слово о теме исследования; Цель, основные направления и идеи научного исследования; Краткое описание научной и практической значимости работы; Краткое описание методологии исследования; Основные результаты и анализ, выводы исследовательской работы.

Ключевые слова/словосочетания – количеством 3-5 на русском, казахском и английском языках;

Введение состоит из следующих основных элементов: Обоснование выбора темы; актуальность темы или проблемы. В обосновании выбора темы на основе описания опыта предшественников сообщается о наличии проблемной ситуации (отсутствие каких-либо исследований, появление нового объекта и т.д.).

Актуальность темы определяется общим интересом к изученности данного объекта, но отсутствием исчерпывающих ответов на имеющиеся вопросы, она доказывается теоретической или практической значимостью темы.

Определение объекта, предмета, целей, задач, методов, подходов, гипотезы и значения вашей работы. Цель исследования связана с доказательством тезиса, то есть представлением предмета исследования в избранном автором аспекте.

В секции обзор литературы – должны быть охвачены фундаментальные и новые труды по исследуемой тематике зарубежных авторов на английском языке, анализ данных трудов с точки зрения их научного вклада, а также пробелы в исследовании, которые Вы дополняете в своей статье.

Методология – должны состоять из описания материалов и хода работы, а также полного описания использованных методов.

В разделе Результаты и Обсуждение – приводится анализ и обсуждение полученных вами результатов исследования. Приводятся выводы по полученным в ходе исследования результатам, раскрывается основная суть. И это один из самых важных разделов статьи. В нем необходимо провести анализ результатов своей работы и обсуждение соответствующих результатов в сравнении с предыдущими работами, анализами и выводами.

Заключение – обобщение и подведение итогов работы на данном этапе; подтверждение истинности выдвигаемого утверждения, высказанного автором, и заключение автора об изменении научного знания с учетом полученных результатов. Выводы не должны быть абстрактными, они должны быть использованы для обобщения результатов исследования в той или иной научной области, с описанием предложений или возможностей дальнейшей работы.

Список используемой литературы, или Библиографический список состоит из не менее 15 наименований, и из общего числа наименований на английском языке должно быть не менее 50%. В случае наличия в списке литературы работ, представленных на кириллице, необходимо представить список литературы в двух вариантах: первый – в оригинале, второй – романизированным алфавитом (транслитерация – translit-online.ru).

Ссылки на цитируемые работы в тексте даются в скобках, с указанием первого автора работы, год издания: номер страниц(-ы). Например, (Залесский, 1991: 25). Стоимость публикации – 2000 тенге/страница

INFORMATION FOR AUTHORS

The authors can be:
- doctoral students, together with the supervisor;
- persons with an academic degree;
- persons engaged in scientific and pedagogical activities.

Articles co-authored with undergraduates are not allowed for publication.

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The requirement for authors: The editorial board accepts previously unpublished articles on the scientific directions of the journal. The article is submitted in electronic format (in the formats .doc, .docx, .rtf) ONLY by downloading it through the functionality of the journal's website (Open Journal System); Font size – 12 (abstract, key words, literature – 10, text of tables – 9-11), font – Times New Roman, alignment – width of text, interval – single, indented margin – 0,8 cm, margins: upper and the bottom – 2 cm, left and right – 2 cm. Figures, tables, graphs, diagrams, etc. are presented directly in the text indicating the numbering, title (For example, Fig. 1 – Name of the figure) and the source as a note (For example, Note – compiled by the author based on the source ...). The number of figures, tables, graphs and diagrams should not exceed 20% of the total volume of the article (in some cases up to 30%); The volume of the article (excluding the title, information about authors, abstract, keywords, references) must be at least 3,000 words and not exceed 7,000 words;

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Structure of the article: First page: First line – IRSTI number (international rubricator of scientific and technical information), alignment – left, font – bold. Author(s) of the article – Initials and surname, place of work (affiliation), city, country, e-mail, ORCID ID. Information about authors is represented in ordinary type in lowercase letters, alignment in the center. The title of the article should reflect the essence and content of the article and attract the reader's attention. The title should be short, informative and not contain jargons or abbreviations. The optimal length of the title is 5-7 words (in some cases 10-12 words). The title of the article is shown in bold in lowercase letters, alignment – in the center. Abstract – at least 150-300 words.

The structure of the annotation includes the following obligatory items: Opening remarks about the research topic, purpose, main directions and ideas of scientific research, brief description of the scientific and practical significance of the work, brief description of the research methodology, main results and analysis, conclusions of research work, the value of the research carried out (contribution of this work to the relevant field of knowledge).

Keywords – 3-5 words.

Introduction consists of the following main elements: Justification of the choice of topic; relevance of the topic or problem. In substantiation of the choice of topic based on the description of the experience of predecessors, the presence of a problem situation (the absence of any research, the emergence of a new object, etc.) is reported.

The relevance of the topic is determined by the general interest in the knowledge of this object, but the lack of comprehensive answers to the questions, it is proved by the theoretical or practical significance of the topic.

In the literature review section, fundamental and new works on the subject matter of foreign authors in English should be covered (at least 15 works), analysis of the given works in terms of their scientific contribution, as well as research gaps that you supplement in your article.

Methodology should consist of a description of the materials and the progress of the work, as well as a complete description of the methods used.

In the Results and Discussion section an analysis and discussion of the research results you received is provided. The conclusions on the results obtained during the study are given, the main essence is revealed. And this is one of the most important sections of the article. It is necessary to analyze the results of their work and discuss the relevant results in comparison with previous works, analyzes and conclusions.

Conclusion – synthesis and summarizing the work at this stage; confirmation of the truth of the statement put forward by the author, and the author's conclusion on the change of scientific knowledge, taking into account the results obtained. Conclusions should not be abstract, they should be used to summarize the results of research in a particular scientific field, with a description of the proposals or opportunities for further work.

References consists of at least 15 titles, and from the total number of titles in English must be at least 50%. style of the list of references – American Psychological Association (http://www.apastyle.org/). The list of references is presented in alphabetical order, and ONLY those works that are cited in the text. References to cited works in the text are given in brackets, indicating the first author of the work, year of publication: the number of pages. For example, (Zalessky, 1991: 25). Publication cost – 2000 tenge/page

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