https://doi.org/10.58805/ebs.V.1(32)-8

STAKEHOLDER ENGAGEMENT ASSESSMENT MODEL FOR ENHANCING THE EFFICIENCY OF CITIZEN-CENTERED DIGITAL PUBLIC SERVICE DELIVERY PROJECTS

A.K. Amirova[✉], **Zh.D. Nurlanova**

[1] *Astana IT University, Astana, Kazakhstan*

[✉] *Corresponding author: a.amirova@astanait.edu.kz*

The article considers stakeholder engagement as a practical condition for improving the efficiency of people-centered digital public service delivery projects. The research is based on the case of Kazakhstan, where e-government infrastructure has reached a relatively mature stage, and on a selective comparison with practices from the United Kingdom, Estonia and Singapore. The paper argues that the next stage of digital transformation should not be limited to increasing the number of online services. A formally digital service may still remain inconvenient if citizens have to search for fragmented information, submit the same data several times or use additional offline channels to complete a procedure.

The methodological basis of the study combines document analysis, comparative institutional analysis, stakeholder mapping and conceptual modelling. A separate literature review covers recent studies on digital government transformation, co-creation of public services, citizen-centricity, service performance, trust and digital inclusion. As a result, a stakeholder engagement assessment model is proposed. The model includes seven dimensions: stakeholder identification and inclusion, user research and co-design, accessibility and multichannel delivery, feedback and satisfaction, interagency coordination and data interoperability, trust and data protection, and service efficiency and public value.

The proposed model can be used by public bodies and project teams as a diagnostic, monitoring and post-project evaluation tool. For Kazakhstan, its value lies in linking digital service efficiency with user experience, reduction of administrative burden, inclusiveness and public trust.

Keywords: digital public services, stakeholder engagement, people-centered approach, e-government, Kazakhstan, service efficiency, public administration, digital transformation.

МОДЕЛЬ ОЦЕНКИ ВОВЛЕЧЕННОСТИ СТЕЙКХОЛДЕРОВ ДЛЯ ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ ЧЕЛОВЕКООРИЕНТИРОВАННЫХ ПРОЕКТОВ ОКАЗАНИЯ ЦИФРОВЫХ ГОСУДАРСТВЕННЫХ УСЛУГ

А.К. Амирова[✉], **Ж.Д. Нурланова**

[1] *Astana IT University, Астана, Казахстан*

[✉] *e-mail: a.amirova@astanait.edu.kz*

В статье рассматривается вовлеченность стейкхолдеров как практическое условие повышения эффективности человекоориентированных проектов оказания цифровых государственных услуг. Исследование основано на опыте Казахстана, где инфраструктура электронного правительства достигла достаточно зрелого уровня, а также на выборочном сравнении с практиками Великобритании, Эстонии и Сингапура. В статье обосновывается, что следующий этап цифровой трансформации не должен сводиться только к расширению количества услуг, доступных онлайн. Формально цифровая услуга может оставаться неудобной, если гражданин вынужден искать разрозненную информацию, повторно предоставлять одни и те же данные или обращаться к офлайн-каналам для завершения процедуры.

Методологическую основу исследования составляют анализ документов, сравнительно-институциональный анализ, картирование стейкхолдеров и концептуальное моделирование. Отдельный обзор литературы охватывает исследования по цифровой трансформации государственного управления, совместному созданию государственных услуг, клиентоцентричности, оценке сервисной эффективности, доверию и цифровой инклюзии. В результате предложена модель оценки вовлеченности стейкхолдеров, включающая семь направлений: идентификацию и инклюзивное вовлечение стейкхолдеров, пользовательские исследования и совместное проектирование, доступность и многоканальность, обратную связь и удовлетворен-

ность, межведомственную координацию и интероперабельность данных, доверие и защиту данных, а также сервисную эффективность и общественную ценность.

Предложенная модель может использоваться государственными органами и проектными командами как диагностический, мониторинговый и постпроектный инструмент. Для Казахстана ее значение состоит в том, что она связывает эффективность цифровых услуг с пользовательским опытом, снижением административной нагрузки, инклюзивностью и общественным доверием.

Ключевые слова: цифровые государственные услуги, вовлеченность стейкхолдеров, человекоориентированный подход, электронное правительство, Казахстан, эффективность услуг, государственное управление, цифровая трансформация.

ЦИФРЛЫҚ МЕМЛЕКЕТТІК ҚЫЗМЕТТЕРДІ КӨРСЕТУДІҢ ХАЛЫҚҚА БАҒДАРЛАНҒАН ЖОБАЛАРЫНЫҢ ТИІМДІЛІГІН АРТТЫРУҒА АРНАЛҒАН СТЕЙКХОЛДЕРЛЕРДІҢ ҚАТЫСУЫН БАҒАЛАУ МОДЕЛІ

А.Қ. Әмірова[✉], **Ж.Д. Нурланова**

[1] *Astana IT University, Астана, Қазақстан*
[✉] *e-mail: a.amirova@astanait.edu.kz*

Мақалада стейкхолдерлердің қатысуы цифрлық мемлекеттік қызметтерді көрсетудің халыққа бағдарланған жобаларының тиімділігін арттырудың практикалық шарты ретінде қарастырылады. Зерттеу электрондық үкімет инфрақұрылымы салыстырмалы түрде жетілген деңгейге жеткен Қазақстан тәжірибесіне, сондай-ақ Ұлыбритания, Эстония және Сингапур тәжірибелерімен іріктемелі салыстыруға негізделген. Мақалада цифрлық трансформацияның келесі кезеңі онлайн қолжетімді қызметтердің санын көбейтумен ғана шектелмеуі тиіс екені негізделеді. Егер азамат шашыраңқы ақпаратты іздеуге, бір деректерді бірнеше рет ұсынуға немесе рәсімді аяқтау үшін офлайн арналарға жүгінуге мәжбүр болса, формалды түрде цифрлық қызметтің өзі де қолайсыз болып қалуы мүмкін.

Зерттеудің әдістемелік негізін құжаттарды талдау, салыстырмалы институционалдық талдау, стейкхолдерлерді карталау және тұжырымдамалық модельдеу құрайды. Әдебиеттерге шолу цифрлық үкімет трансформациясы, мемлекеттік қызметтерді бірлесіп құру, азаматқа бағдарлану, сервистік тиімділікті бағалау, сенім және цифрлық инклюзия мәселелері бойынша зерттеулерді қамтиды. Нәтижесінде стейкхолдерлердің қатысуын бағалау моделі ұсынылды. Модель жеті бағытты қамтиды: стейкхолдерлерді анықтау және инклюзивті тарту, пайдаланушыларды зерттеу және бірлесіп жобалау, қолжетімділік және көпарналы қызмет көрсету, кері байланыс және қанағаттану, ведомствоаралық үйлестіру және деректердің өзара үйлесімділігі, сенім және деректерді қорғау, сондай-ақ сервистік тиімділік пен қоғамдық құндылық.

Ұсынылған модельді мемлекеттік органдар мен жобалық командалар диагностикалық, мониторингтік және жобадан кейінгі бағалау құралы ретінде пайдалана алады. Қазақстан үшін оның маңызы цифрлық қызметтердің тиімділігін пайдаланушы тәжірибесімен, әкімшілік жүктемені азайтумен, инклюзивтілікпен және қоғамдық сеніммен байланыстыруында.

Түйін сөздер: цифрлық мемлекеттік қызметтер, стейкхолдерлерді тарту, халыққа бағдарланған тәсіл, электрондық үкімет, Қазақстан, қызмет тиімділігі, мемлекеттік басқару, цифрлық трансформация.

Introduction. Digital transformation has changed how public administrations interact with citizens and businesses. In many countries, including Kazakhstan, the discussion has moved beyond the question of whether public services can be provided online. The more difficult question is whether these services are clear, accessible, trusted, responsive and efficient from the perspective of the people who use them.

This distinction is important. A public service may be formally digital, but still require a citizen to understand institutional boundaries, submit the same information several times, visit a public office for clarification or wait for decisions that are not transparent. In such cases, digitalization reduces neither user effort nor administrative burden. People-centered digital government therefore requires more than a portal or a mobile application. It requires a systematic understanding of stakeholders and a mechanism through which their experience can influence service design and project management.

Kazakhstan provides a relevant case for such analysis. The country has made visible progress in the development of e-government infrastructure. In the 2024 United Nations E-Government Development Index Kazakhstan ranked 24th out of 193 countries, while official national sources also emphasize the high

level of online service availability [1, 2]. By 2026, eGov.kz reported more than 15 million registered users, over 508 million services delivered in total and approximately 90% of more than 1,300 public services available online [3]. These indicators show that Kazakhstan has moved from the initial digitalization stage to a more mature stage, where the quality and usefulness of services become central.

At the same time, international assessments point to remaining challenges. The OECD Public Governance Scan of Kazakhstan stresses the need to make digital services more user-friendly and responsive to citizens' needs, and to encourage bottom-up innovation through citizen involvement [4]. This means that the next step is not only to expand the catalogue of digital services, but also to assess how stakeholders are included in service design, implementation and evaluation.

The purpose of this article is to propose a stakeholder engagement assessment model for enhancing the efficiency of people-centered digital public service delivery projects. The research focuses on Kazakhstan and uses selected practices from the United Kingdom, Estonia and Singapore as comparative reference points. These countries are not treated as models to be copied mechanically. Their experience is used to identify principles that may be adapted to the Kazakhstan context: user research and service standards, interoperability, life-event services, accessibility and trust.

Scientific novelty and contribution. The scientific novelty of the study lies in integrating elements that are often examined separately-stakeholder identification, co-design, accessibility, feedback, interagency interoperability, trust and data protection, and service outcomes—into one lifecycle-oriented assessment framework. The proposed model goes beyond technology-readiness or single-indicator satisfaction assessments by linking evidence of stakeholder engagement to service-efficiency and public-value outcomes and by providing a transparent 0–5 scoring logic. The contribution is methodological rather than causal or empirical: the model is intended as a structured diagnostic framework that can be tested and refined using expert assessment, user surveys, service analytics and service-specific case studies.

Materials and Methods. The central research question is: how can stakeholder engagement be assessed in digital public service delivery projects in order to improve their efficiency and people-centeredness? The question is formulated in relation to the current stage of Kazakhstan's digital government development, where the availability of digital channels is already high, but issues of user experience, interagency coordination, inclusion and trust remain important.

The study is guided by the following research assumption: the efficiency of people-centered digital public service projects depends not only on technological readiness, but also on the systematic inclusion of stakeholders throughout the service lifecycle. If stakeholder needs are identified late or only formally, digitalization risks reproducing existing administrative barriers in electronic form. Because the present study is conceptual and does not test causal relationships with primary empirical data, this assumption serves as the analytical basis for constructing the assessment model and should be empirically tested in future research.

The study was carried out in four stages. The first stage involved the analysis of official sources and policy documents related to digital public services in Kazakhstan and selected foreign countries. The second stage focused on recent academic literature on digital government transformation, public service co-creation, citizen-centricity, trust, inclusion and service performance. The third stage used stakeholder mapping to identify the main groups that affect or are affected by digital public service projects. The fourth stage consisted of conceptual modelling and development of assessment dimensions and indicators.

The methodological design combines document analysis, comparative institutional analysis, qualitative interpretation, stakeholder mapping and indicator-based modelling. The article does not claim to measure all public services in Kazakhstan empirically. Rather, it proposes a model that can later be tested through expert assessment, user surveys, service analytics or case studies of selected digital public services.

Results and Discussion. *Recent literature on stakeholder engagement and digital public services.*

The literature published in the last five years shows a clear shift in the study of digital public services. Earlier research often measured e-government through readiness, infrastructure or the number of online services. Recent studies pay more attention to how services are experienced by citizens and businesses, how public bodies coordinate around the user journey, and how stakeholder feedback is translated into service redesign. This shift is important for the present research because it allows stakeholder engagement to be treated not as an optional communication activity, but as a measurable condition of service efficiency.

One group of studies frames digital government transformation as an organisational and managerial process. Tangi, Janssen, Benedetti and Noci show that digital government transformation is shaped by a combination of factors, including a sense of urgency, perceived need for change and the creation of a collaborative environment [5]. Their findings are useful for this research because they move the discussion beyond technology adoption and point to management support, organisational barriers and collaboration as critical conditions for successful digital transformation.

A second stream deals directly with co-creation and citizen engagement. Khan and Krishnan develop a process theory view of citizen engagement in the co-creation of e-government services [6]. Rodriguez Müller and co-authors, in a scoping review of empirical evidence on digital public service co-creation, show that co-creation is not a single event but a set of practices that may include problem definition, service design, implementation and evaluation [7]. For the present study, this means that stakeholder engagement should be assessed across the project cycle rather than only at the stage of public consultation.

A third stream focuses on citizen-centricity and human-centered service delivery. Dechamps, Simonofski and Burnay argue that citizen-centricity remains difficult to measure because definitions are often fragmented and inconsistent [8]. The OECD Recommendation on Human-Centred Public Administrative Services also frames public services around people's needs in design and delivery [9]. These studies support the idea that people-centeredness should be operationalized through concrete indicators, including user research, accessibility, feedback, data protection and service outcomes.

Recent literature also highlights performance measurement, trust and inclusion. Studies on digital government service performance show that evaluation should include both institutional and user-side indicators, not only technical availability [10]. Research on digital inclusion emphasizes that digital transformation may deepen inequality if marginalized groups, people with low digital literacy or users with limited access to devices are not considered in service design [11]. From this perspective, stakeholder engagement is also a mechanism for identifying groups whose needs are easily missed by standard digitalization metrics.

Kazakhstan-focused studies confirm the same tendency. The OECD Public Governance Scan of Kazakhstan recognises the country's progress in digital government, but also recommends strengthening citizen engagement, user-friendly services and responsive public administration [4]. Research on citizen-centered public services in Kazakhstan similarly stresses that digital governance should be linked with legal, institutional and service-quality reforms rather than treated as a purely technological process [12]. Overall, the recent literature reveals a research gap: citizen engagement, co-creation, digital inclusion and service performance are often discussed separately, while public bodies need an integrated tool that links stakeholder engagement to project efficiency.

Kazakhstan's e-government development has created a strong institutional and technological base. The eGov.kz portal and eGov Mobile application are now familiar channels for many citizens and businesses. This is a significant achievement, especially in a country where public services cover large territory, different population groups and a wide range of life situations.

However, the maturity of the infrastructure changes the nature of the policy problem. At an early stage, the main objective was to move services online and provide digital access. At the current stage, the more important question is whether digital services reduce the total effort required from users. A service that is technically available online but difficult to understand, incomplete or weakly integrated with other agencies may still create administrative burden.

For Kazakhstan, stakeholder engagement can therefore be used as a bridge between technological capacity and service quality. It helps public bodies understand where users face difficulties, which steps are unnecessary, which data are repeatedly requested and which groups remain dependent on offline assistance. This is particularly relevant for complex and socially sensitive services related to social protection, healthcare, education, employment, entrepreneurship and migration.

A stakeholder-based approach is also important for front-office employees and civil servants. Their practical knowledge often reveals procedural contradictions that are invisible in formal regulations. If such employees are not involved in the design and testing of digital services, the project team may automate a process that is legally correct but difficult to use in practice.

Lessons from selected international practices. The selected cases do not fully match Kazakhstan's institutional environment. Nevertheless, they offer useful reference points for strengthening stakeholder engagement in digital public services [13].

The United Kingdom's GOV.UK Service Standard is a practical example of how user orientation can be turned into an administrative requirement. Its principles require teams to understand users and their needs, solve the whole problem for users, provide a joined-up experience across channels and make services simple and accessible [14]. For Kazakhstan, the lesson is that digital public service projects should be assessed before launch not only by technical readiness, but also by evidence of user research, usability testing and accessibility checks.

Estonia's experience shows that people-centered services depend not only on good interfaces, but also on reliable data exchange. X-Road provides a secure data exchange layer that allows public and private information systems to interact [15]. This is relevant for Kazakhstan because many public services require information from several agencies. If agencies do not exchange data efficiently, citizens become the carriers of information between institutions. In such cases, digitalization does not remove the administrative burden; it only changes its form.

Singapore's LifeSG platform illustrates the value of life-event logic. Its purpose is to simplify access to government services by connecting different services around user needs and life milestones [16]. For Kazakhstan, this experience is useful for the development of composite and proactive services. The focus should be not only on digitalizing individual administrative services, but also on helping citizens resolve complete life situations with fewer steps and less uncertainty.

Table 1 - Comparative lessons for stakeholder engagement in digital public services

Country / case	Main practice	Stakeholder engagement lesson	Relevance for Kazakhstan
United Kingdom / GOV.UK Service Standard	User needs, whole-problem approach, joined-up channels and accessibility.	User research and testing should be required before launch.	Useful for introducing service-readiness criteria beyond technical readiness.
Estonia / X-Road	Secure interoperability and data exchange between information systems.	Stakeholder engagement must include data owners and service providers, not only final users.	Relevant for reducing repeated requests for documents and improving interagency services.
Singapore / LifeSG	Life-event and milestone-based access to public services.	Services should be designed around user situations rather than agency boundaries.	Useful for composite and proactive public services in Kazakhstan.
Kazakhstan / eGov.kz and eGov Mobile	High level of online availability and broad user base.	The next step is to measure user experience, trust, accessibility and service outcomes.	Supports the transition from digital availability to service quality and public value.

Proposed stakeholder engagement assessment model. The seven dimensions were derived through a structured synthesis of the literature review and the comparative cases rather than selected independently. Stakeholder theory and the co-creation literature support stakeholder identification and inclusion as well as user research and co-design [6, 7, 17] citizen-centricity, human-centred administrative service principles and digital inclusion support accessibility and multichannel delivery [8, 9, 11] co-creation and service-performance research support feedback and satisfaction and the connection to service efficiency and public value [7, 10]. Estonia's X-Road case supports interagency coordination and data interoperability [15] the United Kingdom's Service Standard reinforces user research, accessibility and joined-up delivery [14] and Singapore's LifeSG case reinforces life-event design across agency boundaries [16]. Trust, transparency and data protection were retained because the literature and policy sources reviewed in the study consistently treat trustworthy, understandable digital interaction as a condition of human-centred service delivery [9, 13]. A candidate dimension was retained when it met three criteria: it recurred in the recent literature, it was observable in at least one international case or Kazakhstan practice problem, and it had a plausible link to user effort, administrative burden, service quality, trust or public value. This triangulation produced the seven dimensions presented in Table 2.

For this model, a stakeholder is any actor who uses or is directly affected by a digital public service; designs, delivers, regulates, funds or technically enables it; owns or supplies data required for the service; or represents groups whose access, rights or outcomes may be affected. Building on the stakeholder approach [17], this study operationalizes stakeholder identification through three criteria: (1) degree of impact or affectedness, (2) degree of influence or decision authority over the service, and (3) possession of critical knowledge, data or delivery capacity. Stakeholder mapping should therefore include both high-influence actors and high-impact/low-influence groups, with specific attention to vulnerable and underrepresented users.

The key stakeholder groups in digital public service delivery projects include citizens as direct users of services; businesses as users of licensing, registration, tax and other services; vulnerable groups requiring inclusive and accessible channels; front-office employees and civil servants responsible for service delivery; public agencies that own administrative procedures and data; digital infrastructure operators and IT developers; civil society organizations, expert communities and public councils; and policymakers and regulatory authorities.

Table 2 - Stakeholder engagement assessment model for digital public service projects

Dimension	Assessment question	Indicative evidence	Efficiency link
1. Stakeholder identification and inclusion	Have all relevant stakeholder groups been identified and included?	Stakeholder map; inclusion of citizens, businesses, vulnerable groups, frontline employees and data owners.	Reduces the risk of designing services for an incomplete or average user.
2. User research and co-design	Was the service designed with evidence from real users and service providers?	Interviews, focus groups, journey maps, usability testing, pilot testing and co-design sessions.	Prevents costly redesign and improves completion rates.
3. Accessibility and multichannel delivery	Can different user groups access and complete the service through appropriate channels?	Web and mobile access, offline support, language accessibility, disability access and digital literacy support.	Reduces exclusion and dependence on intermediaries.
4. Feedback and satisfaction	Is feedback collected, analysed and used for improvement?	Satisfaction surveys, complaint analysis, response time to feedback and repeated problem tracking.	Shows whether the service is improving after launch.
5. Interagency coordination and data interoperability	Do agencies exchange data and coordinate around the user journey?	Number of integrated agencies, automated data exchange, once-only data use and reduction of document requests.	Reduces administrative burden and processing time.
6. Trust, transparency and data protection	Do users understand decisions and trust how their data are used?	Privacy notices, consent mechanisms, cybersecurity measures, decision transparency and appeal channels.	Strengthens adoption and reduces resistance to digital channels.
7. Service efficiency and public value	Does engagement lead to measurable improvement in service outcomes?	Processing time, number of visits, completion rate, error rate, support requests, satisfaction and trust indicators.	Links engagement with practical service results.

Engagement mechanisms and evidence sources are expected to vary across the digital public service

lifecycle. At the problem-definition and pre-project stages, appropriate tools include stakeholder mapping, interviews, focus groups analysis of complaints and existing service data, and user-journey mapping. During design and development, engagement can include co-design workshops, prototype and usability testing, accessibility testing, interagency process and data workshops, and consultation on privacy and data use. During pilot and launch stages, project teams can use pilot testing, observation of assisted or offline channels, frontline-staff feedback and structured issue logs. During operation and post-project evaluation, mechanisms include satisfaction surveys, complaint analysis, service analytics, user panels or public consultations, and periodic reviews of data governance, transparency and trust. The purpose is not to apply every mechanism to every stakeholder, but to select methods that match the stakeholder's role, level of impact and the stage of the service lifecycle.

The model includes seven dimensions. Each dimension can be assessed through evidence available before, during and after project implementation. The proposed structure is presented in Table 2.

For practical use, the Stakeholder Engagement Assessment Index can be calculated as follows:

$$\text{SEAI} = \sum W_i \times D_i$$

where SEAI is the Stakeholder Engagement Assessment Index, Wi is the weight of each dimension and Di is the score of each dimension from 0 to 5. A score of 0 indicates no evidence of stakeholder engagement; 1 indicates minimal or formal engagement; 2 indicates partial engagement at selected stages; 3 indicates regular engagement with several stakeholder groups; 4 indicates systematic engagement integrated into project management; and 5 indicates continuous, evidence-based and institutionalized engagement across the full service lifecycle.

At the first stage, equal weights may be used for all seven dimensions. For high-impact services, such as social benefits, healthcare, education or services for vulnerable groups, higher weights may be assigned to accessibility, feedback, trust and inclusion. The logic of the model is shown in Figure 1.

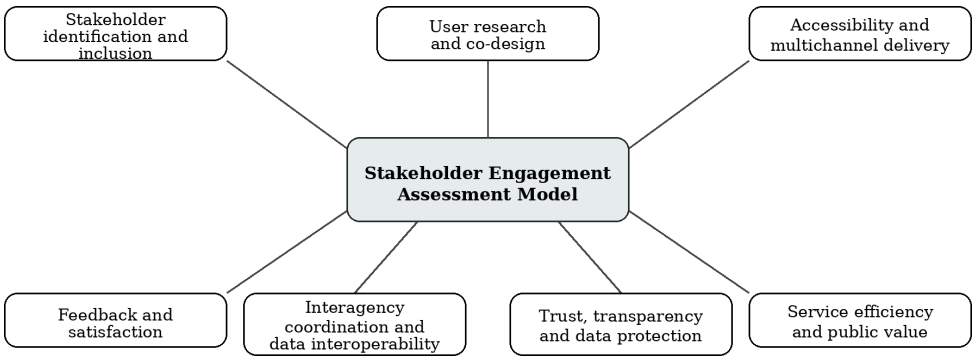


Fig. 1 - Conceptual model of stakeholder engagement assessment in digital public service projects

Pilot calculation of the Stakeholder Engagement Assessment Index for Kazakhstan. To demonstrate the practical use of the proposed formula, a pilot calculation was carried out for Kazakhstan's current digital public service delivery context. The calculation relies on the evidence discussed in the article: high online service availability and broad use of eGov.kz/eGov Mobile, combined with remaining issues of user research, feedback, interagency coordination, trust and inclusion. Since the article does not include a mass survey, the scores are presented as an expert analytical estimate that may later be replaced by survey, service analytics or expert panel data.

Equal weights were assigned to the seven dimensions: Wi = 1/7 = 0.143. Each dimension was scored on the 0-5 scale, where 0 means no evidence of engagement and 5 means continuous, institutionalized and evidence-based engagement across the full service lifecycle.

The calculation is therefore: SEAI = (3.0 + 2.5 + 4.0 + 3.0 + 3.5 + 3.0 + 3.5) / 7 = 3.21 points out of 5. In percentage terms, the result is 64.3%. This value corresponds to a developed but still transitional level of stakeholder engagement. Kazakhstan has strong digital service infrastructure and high online availability, but efficiency gains can be increased through more systematic user research, inclusion of vulnerable groups, regular feedback analysis, stronger interagency data exchange and clearer measurement of public value. The main reserve for efficiency growth lies not only in further digitalizing separate procedures, but in reducing total user effort across the whole service journey.

Application of the model to Kazakhstan. The proposed model can be applied to Kazakhstan's digital public service projects in three ways. First, it can be used at the pre-project stage. Before launching a digital service, public authorities can identify key stakeholder

groups, map user journeys, assess pain points and define expected service outcomes. This is especially important for services that involve several agencies or require multiple documents.

Table 3 - Pilot calculation of SEAI for Kazakhstan's digital public service delivery context

Dimension	Di;	Wi × Di	Analytical basis
1. Stakeholder identification and inclusion	3.0	0.429	Main stakeholders are visible, but inclusion of vulnerable groups, business users and frontline employees is uneven.
2. User research and co-design	2.5	0.357	Citizen involvement is encouraged, but regular co-design and usability testing are not yet fully institutionalized.
3. Accessibility and multichannel delivery	4.0	0.571	Online availability and mobile access are strong, while digital literacy and inclusive access require further support.
4. Feedback and satisfaction	3.0	0.429	Feedback channels exist, but their systematic use for service redesign remains limited.
5. Interagency coordination and data interoperability	3.5	0.500	Digital infrastructure supports data exchange, but fragmented user journeys and repeated requests remain risks.
6. Trust, transparency and data protection	3.0	0.429	Adoption is relatively strong, while decision transparency, data-use clarity and cybersecurity confidence need further strengthening.
7. Service efficiency and public value	3.5	0.500	Large-scale service delivery reduces access barriers, but effects on user effort and burden need stronger measurement.
Total / SEAI	**22.5 / 7**	**3.21**	**Normalized value: (3.21 / 5) × 100 = 64.3%.**

Second, during implementation, the model can be used as a monitoring tool. Instead of reporting only that a service has been launched, the project team can report whether users can complete the service independently, whether complaints are decreasing, whether the number of repeated requests has fallen and whether frontline staff observe fewer procedural problems.

Third, after implementation, the model can support post-project evaluation. Some digital projects look successful immediately after launch, but later reveal problems such as low adoption, user confusion, lack of trust or increased workload for support channels. Post-implementation assessment helps distinguish formal digitalization from actual service improvement.

For example, when applying the model to a composite service connected with the birth of a child, the assessment should not focus on one online form only. It should assess the whole user journey: what information the parent receives, which data are reused automatically, whether related benefits are suggested proactively, whether offline visits are still required and how quickly problems are resolved. In such cases, stakeholder engagement becomes directly linked to efficiency.

Discussion of expected effects and limitations. The proposed model has several implications for public service delivery projects.

First, it treats stakeholder engagement as an operational part of project management. In practice, engagement is often reduced to a survey after the service has already been designed. This is too late. If user needs are identified only after launch, the project may require costly redesign. Engagement should begin before digital architecture and administrative procedures are fixed.

Second, the model broadens the meaning of efficiency. In public administration, efficiency is frequently associated with internal cost reduction or faster processing. These indicators remain important, but they are incomplete. A digital service is not efficient if it shifts hidden costs to citizens by making them search for information, interpret regulations, correct errors or visit multiple agencies. A people-centered measure

of efficiency includes user effort and administrative burden.

Third, the model shows that stakeholder engagement is not only about citizens. Citizens are the final users of many services, but digital service quality also depends on civil servants, data owners, IT teams and policymakers. If these stakeholders are not aligned, the user sees fragmentation: unclear statuses, repeated requests, contradictory information or unstable service channels.

Fourth, the model is compatible with Kazakhstan's current stage of digital government development. Since the basic infrastructure is already developed, the main policy question becomes how to improve service depth, accessibility and trust. The model can help identify whether a project is truly people-centered or whether it simply digitalizes an existing administrative process.

The model also has limitations. It requires reliable data, institutional openness and willingness of public bodies to act on feedback. If scores are assigned formally, without evidence, the model will not improve service quality. Future research should therefore test the model empirically through expert interviews, surveys of eGov users, analysis of service analytics or case studies of selected public services.

Conclusion. Kazakhstan's digital government development has reached a stage where the availability of online services is no longer the only or even the most important indicator of success. The next stage requires a stronger focus on people-centered service quality, stakeholder engagement and public value. International experience shows that advanced digital governments pay attention not only to technology, but also to user needs, life-event logic, accessibility, interoperability and trust.

The article proposed a stakeholder engagement assessment model for enhancing the efficiency of people-centered digital public service delivery projects. The model includes seven dimensions: stakeholder identification and inclusion, user research and co-design, accessibility and multichannel delivery, feedback and satisfaction, interagency coordination and data interoperability, trust and data protection, and service efficiency and public value.

The practical contribution of the model is that it can be used by public bodies and project teams as a diagnostic and monitoring instrument. It connects stakeholder engagement with measurable improvements such as reduced processing time, fewer office visits, higher completion rates, better satisfaction and lower administrative burden. For Kazakhstan, the model may support the transition from digital availability to genuinely people-centered public service delivery. The model's principal methodological novelty is the integration of stakeholder participation and operational service outcomes within one evidence-based, lifecycle-oriented index rather than treating engagement as a one-time consultation activity.

Further research should apply the model to specific digital public services in Kazakhstan and compare the results across service areas. Such empirical testing would make it possible to refine the indicators, adjust weights and identify which dimensions of stakeholder engagement have the strongest influence on service efficiency.

Funding. *This research is funded by the Ministry of Science and Higher Education of the Republic of Kazakhstan (AP22787363).*

References

1. United Nations. E-Government Survey 2024: Accelerating Digital Transformation for Sustainable Development/ New York: United Nations. 2024. −205 p. ISBN 9789210032667, 9789211067286, 9789211067293.
2. Public service and online information. Kazakhstan significantly improved its position in the UN E-Government Development Index. −2024. URL: https://egov.kz/cms/en/news/UN_E-Government. -Date of access: 07.07.2026.
3. Public service and online information. Digitalization of Kazakhstan: eGov.kz celebrates 20th anniversary. −2026. -URL: https://egov.kz/cms/en/news/celebrates_20th_anniversary. - Date of access: 07.07.2026.
4. OECD. OECD Public Governance Scan of Kazakhstan: Toward a More Agile, Responsive and Effective Public Administration/ OECD Public Governance Reviews Paris: OECD Publishing. −2025. DOI 10.1787/f8298798-en.
5. Tangi L., Janssen M., Benedetti M., Noci G. Digital government transformation: A structural equation modelling analysis of driving and impeding factors // International Journal of Information Management. 2021. -Vol. 60: 102356. DOI 10.1016/j.ijinfomgt.2021.102356.

6. Khan A., Krishnan S. Citizen engagement in co-creation of e-government services: A process theory view from a meta-synthesis approach // Internet Research. −2021. -Vol. 31(4). -P. 1318-1375. DOI 10.1108/INTR-03-2020-0116.
7. Rodriguez Müller A.P., Casiano Flores C., Albrecht V., Steen T., Crompvoets J. A scoping review of empirical evidence on (digital) public services co-creation // Administrative Sciences. −2021. -Vol. 11(4): 130. DOI:10.3390/admsci11040130.
8. Dechamps S., Simonofski A., Burnay C. Citizen-centricity in digital government: A theoretical and empirical typology // Government Information Quarterly. −2025. -Vol. 42(1): 102005. DOI 10.1016/j.giq.2024.102005.
9. OECD. Recommendation of the Council on Human-Centred Public Administrative Services. OECD Legal Instruments. −2024. -No. OECD/LEGAL/0503. -URL: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0503. Date of access: 07.07.2026.
10. Zhu B., Zhong R., Wei C. Measuring digital government service performance: Evidence from China // China Economic Review. −2024. Vol. 83: 102105. DOI 10.1016/j.chieco.2023.102105.
11. Djatmiko G.H. Digital transformation and social inclusion in public services: A qualitative analysis of e-government adoption for marginalized communities in sustainable governance // Sustainability. 2025. -Vol. 17(7): 2908. DOI 10.3390/su17072908.
12. Amirova A. Advancing citizen-centered public services in Kazakhstan: Legal, institutional, and digital governance perspectives \// Frontiers in Political Science. −2025. -Vol. 7: 1679601. DOI 10.3389/fpos.2025.1679601.
13. OECD. Global Trends in Government Innovation 2024: Fostering Human-Centred Public Services/ OECD Public Governance Reviews. Paris: OECD Publishing. −2024. DOI 10.1787/c1bc19c3-en.
14. GOV.UK. Service Standard. Government Digital Service. URL: https://www.gov.uk/service-manual/service-standard. - Date of access: 07.07.2026.
15. e-Estonia. X-Road: Interoperability Services. URL: https://e-estonia.com/solutions/interoperability-services/x-road/. Date of access: 07.07.2026.
16. LifeSG. About LifeSG. Government of Singapore. URL: https://www.life.gov.sg/about-us. - Date of access: 07.07.2026.
17. Freeman R.E. Strategic Management: A Stakeholder Approach/Boston: Pitman. −1984. −276p. ISBN 0273019139, 9780273019138.

Information about the authors

Amirova A.K. - Doctor of Public Administration, Assistant Professor, Astana IT University, Astana, Kazakhstan, e-mail: a.amirova@astanait.edu.kz;

Nurlanova Zh.D. - Master's student of the educational programme Project Management, Astana IT University, Astana, Kazakhstan, e-mail: 255203@astanait.edu.kz.

Авторлар туралы мәлімет

Әмірова А.Қ. - мемлекеттік және жергілікті басқару бейіні бойынша докторы, ассистент профессор, Astana IT University, Астана, Қазақстан, e-mail: a.amirova@astanait.edu.kz;

Нурланова Ж.Д. - Project Management білім беру бағдарламасының магистранты, Astana IT University, Астана, Қазақстан, e-mail: 255203@astanait.edu.kz.