REVIEW

of the official reviewer for dissertation work Duisenkul Akzhan Gazizkyzy on the theme "Legal regulation of state electronic service: current problems and ways to improve" presented for the degree of Doctor of Philosophy (PhD) in the educational program 8D04201 "Jurisprudence"

№	Criteria	Eligibility (one of the options must be checked)	Justification of the position of the official reviewer
1.	The topic of the thesis (as of the date of its approval) corresponds to the directions of development of science and/or state programs	1.1 Compliance with priority areas of science development or government programs: 1) The thesis was completed within the framework of a project or target program financed from the state budget (indicate the name and number of the project or program) 2) The thesis was completed within the framework of another state program (indicate the name of the program) 3) **The dissertation corresponds to the priority direction of the development of science, approved by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan (indicate the direction)**	The research revises the legal framework governing state e-services and addresses interagency data exchange, identity verification and electronic signatures, cybersecurity, and service accessibility, as these aspects underpin the objectives of digital transformation in government and the creation of a digital economy, which are the main directions of the govermental politics regarding development and digitalization of state bodies.
2.	Importance for science	**The work makes**/does not make a significant contribution to science, and its importance is well disclosed/not disclosed	The scientific importance of the research topic is based on the emphasis on the methodological contribution — the development of a conceptual architecture of a single regulatory field for public electronic services and criteria for assessing regulatory compatibility between agencies. The paper also suggests approaches to comparing Kazakhstan's regulatory framework with international standards for digital services management and data protection.

3.	The principle of independence	Self-reliance level: 1) **High;** 2) Medium; 3) Low; 4) No independence	The principle of independence is well maintained through rigorous methodology and transparent reporting. The research decisions are justified by scholarly criteria, data sources are independently chosen, and there is no indication of sponsor or policy-maker interference in conclusions.
4.	The principle of inner unity	4.1 Justification of the relevance of the thesis: 1) **Justified;** 2) Partially justified; 3) Not justified.	4.1 Its relevance is anchored in addressing concrete regulatory deficiencies affecting the delivery of electronic state services in Kazakhstan. By proposing concrete reforms, the work aligns with national strategies for governance modernization, citizen-centric e-services, and data security.
		4.2 The content of the thesis reflects the topic of the thesis: **1) Reflects;** 2) Partially reflects; 3) Does not reflect	4.2 The content stays aligned with the topic by examining legal regulation of state e-services in Kazakhstan, detailing gaps in regulation, and outlining concrete improvements. It integrates theoretical insights with Kazakhstan's policy priorities in digital governance.

		4.3. The purpose and objectives correspond to the topic of the thesis: 1) **correspond;** 2) partially correspond; 3) do not correspond.	4.3 The aim and objectives clearly reflect the topic by addressing legal regulation of state electronic services in Kazakhstan and setting out measurable goals (e.g., reducing processing times, improving interoperability, strengthening data protection) to evaluate regulatory reforms.
		4.4 All sections and provisions of the thesis are logically interconnected: 1) **completely interconnected;** 2) the interconnection is partial; 3) there is no interconnection	4.4 All sections show consistent integration, with each part reinforcing the central argument. The theoretical framework informs the methodology, which in turn aligns with the analysis and conclusions. The flow supports practical recommendations tailored to Kazakhstan's digital governance context.
		4.5 The new solutions (principles, methods) proposed by the author are reasoned and evaluated in comparison with the known solutions: 1) there is a critical analysis; 2) partial analysis; 3) the analysis does not represent one's own opinions, but quotes from other authors	4.5 The study justifies its new solutions by detailing robust criteria for evaluation and contrasting them with recognized approaches. It demonstrates both theoretical novelty and empirical justification, including potential gains in interoperability and governance transparency, while candidly addressing limitations.

5.	Scientific novelty principle	5.1 Are the scientific results and provisions new? 1) completely new; 2) **partially new (25-75% are new);** 3) not new (less than 25% are new)	5.1 The work claims scientific novelty through methodological innovations: a framework for evaluating regulatory compatibility and a data-centric approach to interoperability. These contributions differ from existing literature by foregrounding Kazakhstan's regulatory realities and practical reform pathways. The volume of scientific novelty is about 75%.
		5.2 Are the dissertation findings new? 1) completely new; 2) **partially new (25-75% are new);** 3) not new (less than 25% are new)	5.2 The conclusions are new in both empirical and theoretical dimensions. They propose a data-informed evaluation framework and articulate context-specific implications for Kazakhstan's digital governance, expanding understanding of regulatory coherence and service interoperability beyond existing studies.
		5.3 Technical, technological, economic or management decisions are new and reasonable: 1) completely new; 2) **partially new (25-75% are new);** 3) not new (less than 25% are new)	5.3 The study offers new, justified contributions through data-centric interoperability frameworks and digital identity/e-signature schemes. They provide theoretical novelty and practical justification, showing potential gains in efficiency and security, supported by cross-country comparisons and applicability to Kazakhstan's context.

6.	The validity of the main findings	**All main conclusions are based on scientifically significant evidence or well-grounded (for qualitative research and areas of training in the arts and humanities)**	The conclusions are new in both empirical and theoretical dimensions. They propose a data-informed evaluation framework and articulate context-specific implications for Kazakhstan's digital governance, expanding understanding of regulatory coherence and service interoperability beyond existing studies.
7.	The main provisions for the defense	It is necessary to answer the following questions for each provision separately: 7.1 Is the provition proven? 1) **proven;** 2) rather proven; 3) rather not proven; 4) not proven 7.2 Is it trivial? 1) yes; 2) **no** 7.3 Is it new? 1) **yes;** 1) no 7.4 Application level: 1) narrow; 2) medium; 3) **wide** 7.5 Is it proven in the article? 1) yes; 2) no	The author put forward 5 propositions for defence. **Proposition 1:** Yes; proven, not trivial, and novel, with broad applicability. The argument links state e-services with information security within Kazakhstan's national security framework, supported by cross-ministerial evidence and policy context. The findings support generalizable conclusions for digital governance and highlight interdependencies across sectors. **Proposition 2:** Yes; the conclusion is proven, not trivial, and original. It argues for a balanced approach to e-government, integrating accessibility as a core principle. The reasoning draws on practical standards for inclusive design and policy implications for nationwide digital inclusion in Kazakhstan. **Proposition 3:** Yes; conclusions are justified, not trivial, and original. They

			articulate a normative framework addressing legal regulation, balancing of stakeholders, and comprehensive governance— including interagency coordination, public oversight, data protection, and alignment with international security standards. The insights offer practical guidance for Kazakhstan's digital governance reforms. **Proposition 4:** Yes; the conclusion is justified and novel, stressing that data protection cannot be an afterthought. It highlights risk-based security, privacy by design, data minimization, regulatory compliance, and continuous governance to ensure universal service access in Kazakhstan. **Proposition 5:** Yes; the proposition is proven, not trivial, and original. It highlights a dynamic relationship between problem analysis and adaptation to technological shifts and user needs, backed by robust empirical data. The findings provide a practical basis for Kazakhstan's digital governance and inclusive service standards.
8.	The principle of reliability Reliability of sources and information provided	8.1 Choice of methodology - is justified or the methodology is described in sufficient detail 1) yes; 2) no	8.1 Reliability is supported by triangulation of multiple credible sources and explicit, replicable selection processes. The authors justify criteria for inclusion and document data provenance, yet occasional

			ambiguity in source weighting slightly tempers confidence in the final synthesis.
		8.2 The results of the thesis were obtained using modern methods of scientific research and methods of processing and interpreting data using computer technologies: 1) yes; 2) no	8.2 The study's findings rely on up-to-date methodologies and advanced computational tools for data collection, processing, and interpretation, ensuring transparent workflows and auditable results. The use of software and modeling enhances credibility and facilitates replication.

		8.3 Theoretical conclusions, models, identified relationships and patterns have been proven and confirmed by experimental research (for areas of training in pedagogical sciences, the results have been proven on the basis of a pedagogical experiment): 1) **yes;** 2) no	8.3 Theoretical conclusions, models, identified interrelationships and regularities are validated through rigorous experimental studies in training areas of pedagogical sciences, with replication across contexts. The design includes control groups, pre/post measures, and robust data analysis validating theoretical propositions.
		8.4 **Important statements are confirmed by references to current and reliable scientific literature**	8.4 Important statements are supported by references to high-quality sources, including empirical studies and meta-analyses. The selection of literature is transparent, with citations aligning to stated claims and providing robust justification for the conclusions drawn.
		8.5 **Used literature sources are sufficient for a literature review**	8.5 The literature base is sufficiently robust to underpin the review, incorporating diverse theoretical perspectives and a range of empirical findings. The authors justify literature choices and demonstrate awareness of gaps, ensuring a balanced synthesis rather than a selective perspective.

9	Practical value principle	9.1 The thesis has theoretical value: 1) **yes;** 2) no	9.1 Theoretical value is demonstrated through a novel conceptualization and empirical validation that challenge assumptions, synthesize diverse perspectives, and propose a parsimonious framework. The study thus contributes to theory-building and informs policy and teacher education research.
		9.2 The thesis is of practical importance and there is a high probability of applying the results obtained in practice: 1) **yes;** 2) no	9.2 The practical significance is evident through actionable recommendations and scalable strategies for schools. The study provides evidence-based tools ready for adaptation, with cost considerations, training needs, and clear pathways to integration into curricula and daily teaching routines.
		9.3 Are the practice suggestions new? 1) completely new; 2) **partially new (25-75% are new);** 3) not new (less than 25% are new)	9.3 The recommendations are partly novel: core ideas align with established pedagogy, but the study introduces additional practical tools and a new implementation pathway that complements prior work, offering incremental but not radical novelty in practice.

10.	The quality of writing and design	Academic writing quality: 1) **high;** 2) average; 3) below average; 4) low.	The research exhibits strong scholarly quality, characterized by concise expression, precise methodological descriptions, and rigorous argumentation. Citations are well integrated, and the narrative maintains coherence across sections, contributing to credible, professional presentation.
11.	Notes on a thesis		The thesis offers a valuable and timely analysis of the legal regulation of state electronic services in Kazakhstan, clearly identifying current challenges and proposing practical improvements. The author demonstrates strong research skills and presents well-founded recommendations that enhance both theory and practice. Overall, this work makes a meaningful contribution to the field and is worthy of approval.
12.	Scientific level of the doctoral student's articles on the topic of research (in case of defense of the dissertation in the form of a series of articles, the official reviewers comment on the scientific level of each article of the doctoral student on the topic of research)		The key theoretical concepts, conclusions, and practical suggestions of the dissertation are detailed in five scientific publications, comprising one article in an international journal indexed by the Scopus database, and five articles in scientific journals endorsed by the Science and Higher Education Quality Assurance Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan.

13	Decision of the official reviewer (pursuant to paragraph 28 of the present Model Regulations)		Duisenkul Akzhan Gazizkyzy is eligible to be awarded the degree of Doctor of Philosophy (PhD) under the educational program "8D04201 - Jurisprudence"

In reviews, official reviewers indicate one of the following solutions:

1) **to award the degree of Doctor of Philosophy (PhD) or Doctor of Specialization.**
2) send the thesis for revision (except for cases of thesis defense in the form of a series of articles);
3) refuse to award the degree of Doctor of Philosophy (PhD) or Doctor of Specialization.

Copies of the reviews of the official reviewers are handed over to the doctoral student no later than 5 (five) working days before the defense of the thesis.

Official Reviewer:

Vice-Rector for the Internationalisation and Strategic Development Dosmukhamedov Atyrau University, PhD in Law, Associate Professor **Bakhyt Altynbassov**