

From Digital Transformation to Responsible AI Governance: Public-Facing AI Ethics Readiness in the Kurdistan Region

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Abstract

Artificial intelligence (AI) and generative AI are increasingly shaping public services, education, media, research, public communication, and digital government. While the Kurdistan Region of Iraq has visible digital transformation initiatives, limited research has examined whether AI ethics and responsible AI governance are publicly visible across its institutions. This study addresses that gap through a qualitative website-based document analysis of 20 selected institutional websites and public-facing documents in the Kurdistan Region. The analysis examined 11 dimensions of public-facing AI ethics readiness: AI or GenAI policy visibility, governance responsibility, privacy and data protection, human oversight, fairness and bias mitigation, Kurdish-language inclusion, cultural representation, misinformation and deepfakes, AI literacy, redress mechanisms, and practical implementation guidance. The findings suggest that digital transformation is publicly visible through government digital services, data-related initiatives, education platforms, digital identity and service portals. However, AI-specific ethical governance remains limited, fragmented, or not clearly visible in the reviewed materials. The paper argues that the Kurdistan Region is moving from digital transformation toward the need for responsible AI governance. It proposes an 11-pillar Kurdistan Public-Facing AI Ethics Readiness Framework that links global responsible AI principles to regional concerns around public visibility, language inclusion, cultural representation, digital trust, and institutional accountability. The study contributes to AI ethics scholarship by showing that public-facing visibility is itself an ethical dimension of responsible AI governance in subnational, multilingual, and culturally distinct contexts.

1. Introduction

Artificial intelligence (AI) and generative AI are increasingly shaping public services, education, media, research, institutional communication, and everyday digital life. These technologies create opportunities for more efficient administration, improved access to information, personalised services, language support, and new forms of public engagement. At the same time, they raise ethical concerns related to privacy, bias, transparency, human oversight, accountability, cultural representation, misinformation, and public trust. As AI systems become easier to embed in organisational practice, the question is no longer only whether institutions use AI, but whether they can govern it responsibly and communicate this governance clearly to the public.

This issue is especially important in emerging, subnational, multilingual, and culturally distinct contexts. Much of the global AI ethics debate has been shaped by national strategies, corporate responsible AI frameworks, international principles, and Global North policy discussions. These frameworks provide important foundations, but they do not always explain how AI ethics should be translated into public-facing governance in regions with different institutional capacities, language realities, cultural expectations, and levels of digital infrastructure. Responsible AI therefore requires local interpretation, public communication, practical implementation tools, and attention to communities affected by AI systems (Batool et al., 2025; Jobin et al., 2019; Waddington et al., 2026).

The Kurdistan Region of Iraq provides a significant case for examining this problem. The region is undergoing visible digital transformation across public services, education, government communication, data systems, and online institutional platforms. Public KRG sources describe digital transformation, government digital services, data privacy, citizen complaint systems, and public data initiatives as part of a wider digital-government agenda (Kurdistan Regional Government, n.d.-a, n.d.-b, n.d.-c; Kurdistan Regional Government Department of Information Technology, 2023; Kurdistan Region Statistics Office, n.d.). These developments create a foundation for digital government, but they also increase the need for visible AI governance as AI and generative AI tools become more accessible to students, educators, researchers, public-sector workers, media actors, businesses, and citizens.

The ethical challenge in the Kurdistan Region is therefore not simply whether AI is present. The more important issue is whether AI ethics and responsible AI governance are publicly visible, understandable, and usable. Public-facing visibility matters because citizens and stakeholders cannot rely on safeguards they cannot see or understand. If institutions publish digital transformation strategies, public-service platforms, or education systems without clear AI-related guidance, users may not know how AI is governed, who is responsible for decisions, how personal data is protected, whether human oversight exists, or how harms can be reported and corrected.

A second issue is localisation. AI ethics cannot be reduced to universal principles without attention to language, culture, and social context. In the Kurdistan Region, Kurdish-language inclusion is not only a matter of translation; it is an AI ethics issue. Recent Kurdish NLP research shows progress in Central Kurdish language resources, automatic speech recognition, summarisation, and ChatGPT evaluation, but also indicates continuing low-resource challenges (Abdullah et al., 2024; Abdulrahman & Hassani, 2025; Ahmadi et al., 2024; Hassan et al., 2025). If AI systems are introduced into public services, education, media, or institutional communication without assessing their performance in Kurdish, users may face unequal access, lower-quality outputs, or cultural misunderstanding.

Cultural representation is also central to responsible AI in the Kurdistan Region. Large language models and other AI systems may reproduce stereotypes, simplify cultural identities, or default to dominant linguistic and cultural assumptions. Wdowicz (2026) argues that LLMs can behave more like cultural caricaturists than mirrors of human cultural variation. For a culturally distinct region such as Kurdistan, this raises questions about whether global AI tools can adequately reflect Kurdish identity, local values, community expectations, and public trust.

Digital trust is a further area of concern. Generative AI can create convincing text, images, audio, and video, increasing risks of misinformation, disinformation, deepfakes, impersonation, and manipulation. These risks are especially important for public communication, media ecosystems, education, elections, crisis communication, and institutional credibility (Maia et al., 2025; Paniego Béjar et al., 2026). Public-facing AI ethics readiness should therefore include guidance on AI-generated content, synthetic media, fact-checking, official information verification, deepfake reporting, and public AI literacy.

This paper addresses a gap at the intersection of AI governance, public-facing institutional communication, language inclusion, cultural representation, and digital trust. It examines selected institutional websites and public documents in the Kurdistan Region. The study does not assess internal institutional practices or unpublished policies. Instead, it focuses on what is publicly visible during the search period. This distinction is important because absence of visible guidance does not necessarily mean absence of internal practice. However, public visibility remains ethically significant because responsible AI governance must be accessible to people affected by AI systems.

The study is guided by three research questions: (1) What AI ethics and governance guidance is publicly visible across selected public-facing institutions in the Kurdistan Region? (2) How do public-facing materials address governance responsibility, privacy and data protection, human oversight, fairness and bias, Kurdish-language inclusion, cultural representation, misinformation and deepfakes, AI literacy, redress, and implementation guidance? (3) How can global AI ethics principles be translated into a practical Kurdistan Public-Facing AI Ethics Readiness Framework?

The paper makes three contributions. First, it contributes empirically by providing a public-facing analysis of AI ethics readiness across selected institutional websites in the Kurdistan Region. Second, it contributes conceptually by arguing that public-facing visibility is itself an ethical dimension of responsible AI governance. Third, it contributes practically by proposing an 11-pillar readiness framework designed to help public institutions move from general digital transformation toward responsible AI governance.

2. Literature Review

2.1 AI governance and responsible AI

AI governance has become a central concern because AI systems increasingly affect public services, education, healthcare, security, media, research, and everyday decision-making. Responsible AI is commonly associated with fairness, accountability, transparency, privacy, inclusiveness, safety, reliability, and human-centred values. However, recent literature shows that ethical principles alone are insufficient unless they are supported by governance structures, implementation tools, and clear stakeholder responsibilities (Batool et al., 2025; NIST, 2023; OECD, 2024).

Batool et al. (2025) argue that AI governance should be examined through four practical questions: who is accountable for governing AI systems, what elements are governed, when governance occurs in the AI lifecycle, and how governance is implemented through frameworks, tools, policies, or models. This approach is important because it moves AI ethics beyond abstract values and toward operational responsibility.

2.2 From principles to implementation

Comparative research on responsible AI policies shows that AI frameworks vary significantly in scope, target audience, enforceability, scalability, resource requirements, lifecycle coverage, and implementation tools (Batoool et al., 2026). Some frameworks provide broad principles but limited practical guidance, while others include assessment forms, governance steps, reporting procedures, or implementation guides. International instruments such as the EU AI Act, the Council of Europe AI Convention, UNESCO's Recommendation, and the NIST AI RMF show a shift toward risk management, human rights, accountability, and implementable safeguards (Council of Europe, 2024; European Parliament and Council of the European Union, 2024; NIST, 2023; UNESCO, 2022).

This distinction is central for the Kurdistan Region. Public-facing documents should not only state that digital transformation is important; they should also explain responsible AI use, institutional responsibilities, data safeguards, risks related to bias and misinformation, and routes for redress.

2.3 Localising AI ethics

A growing body of AI ethics research argues that global AI principles need localisation. Western ethical frameworks and international policy models provide valuable foundations, but they may not fully capture the needs of culturally diverse, multilingual, and Global South contexts. Waddington et al. (2026) argue that responsible GenAI in higher education can be strengthened by integrating non-Western ethical traditions and by addressing relationality, community benefit, context sensitivity, rights and responsibilities, and desired outcomes.

For the Kurdistan Region, localisation means translating principles such as fairness, transparency, dignity, privacy, accountability, and human oversight into guidance that reflects local language, culture, governance capacity, and stakeholder needs. This makes Kurdish-language inclusion, cultural representation, and public trust core components of AI ethics readiness.

2.4 Language inclusion and cultural representation

Language inclusion is an important but often underdeveloped AI ethics issue. AI can support translation, communication, personalised learning, accessibility, and multilingual support, but benefits are unevenly distributed across languages (Fitas, 2025). Low-resource languages may receive weaker performance because of limited training data, fewer digital resources, and less commercial investment.

Kurdish-language AI research demonstrates both progress and persistent gaps. Central Kurdish resources, speech recognition work, Sorani summarisation, and ChatGPT evaluation provide valuable evidence that Kurdish AI capacity is developing, but not yet equivalent to dominant global languages (Abdullah et al., 2024; Abdulrahman & Hassani, 2025; Ahmadi et al., 2024; Hassan et al., 2025). Cultural representation is also important because LLMs may reproduce simplified or rigid cultural representations (Wdowicz, 2026).

2.5 Education, misinformation and public trust

Education is one of the areas most affected by GenAI. Go et al. (2026) show that AI adoption in education has moved faster than the development of practical ethical standards, leaving teachers and students with abstract guidance that may be difficult to apply. UNESCO's AI competency frameworks for teachers and students similarly emphasise that AI literacy is now an educational governance issue (UNESCO, 2024a, 2024b).

Generative AI has also intensified concerns about misinformation, deepfakes, synthetic media and trust. AI-driven truth technologies may support fact-checking and source evaluation, but they also create risks of bias, overreliance, manipulation and censorship (Paniego Béjar et al., 2026). Research on deepfake-related fact-checking highlights the importance of value-sensitive design, transparency, authenticity, privacy, inclusiveness and stakeholder participation (Maia et al., 2025).

2.6 Literature gap

The literature suggests five connected gaps that shape this study. First, AI governance frameworks often identify principles but do not always provide clear answers to who governs AI, what is governed, when governance occurs, and how governance is implemented. Second, responsible AI policies differ in their practical implementation. Third, global AI ethics frameworks may not fully address local culture, language, community values, and subnational governance realities. Fourth, language inclusion remains underdeveloped as an AI ethics issue, especially for low-resource languages such as Kurdish. Fifth, misinformation, deepfakes, and AI-generated public communication require stronger governance and public literacy.

These gaps justify the focus of this paper. The Kurdistan Region provides a valuable case for examining how global responsible AI principles can be translated into public-facing governance in a subnational, multilingual, and culturally distinct context.

3. Methodology

3.1 Research design

This study uses qualitative website-based document analysis to examine public-facing AI ethics readiness in the Kurdistan Region. The study does not evaluate internal institutional practices, unpublished policies, or informal uses of AI. Instead, it examines what citizens and stakeholders can see through public websites and publicly available documents during the search period. Public-facing visibility is treated as an ethical governance issue because transparency, accessibility and accountability depend partly on whether guidance can be found and understood.

3.2 Sample selection and justification

The sample includes 20 selected institutional websites. The sample was purposively selected to cover the main sectors where AI ethics, digital governance, data protection, public communication, education, health, social services, local government, language inclusion, and public trust are likely to be relevant.

The sample includes central government, digital transformation bodies, public service portals, legislative and executive institutions, education bodies, public communication bodies, economy and investment, health, interior/security, justice, planning/statistics, social protection, local government, and one education-sector case. The sample is not intended to represent every institution in the Kurdistan Region. It is designed as a structured public-facing readiness audit across key institutional sectors.

3.3 Search period and search strategy

The website search for this manuscript was conducted on 18 June 2026. All included URLs, evidence notes and access dates are recorded in Supplementary File S1. Searches used website search tools where available and external site-restricted queries. Search terms included: artificial intelligence, AI, generative AI, GenAI, ChatGPT, responsible AI, AI ethics, data protection, privacy, cybersecurity, digital transformation, misinformation, disinformation, deepfake, Kurdish language, language inclusion, e-learning and academic integrity. Where exact AI-specific guidance could not be located, the result was recorded as not publicly visible during the search period rather than as evidence of non-existence.

3.4 Data sources

Data consisted of public webpages, strategy pages, policy documents, service descriptions, public reports, news items, privacy or data-related pages, education and e-learning pages, citizen-service pages, public communication pages, and other relevant public-facing materials. Password-protected pages, internal documents, private communications and unpublished institutional practices were excluded. When evidence was not found, the study uses the wording 'not publicly visible during the search period' rather than claiming that an internal policy does not exist.

3.5 Coding framework and scoring

The coding framework included 11 dimensions: AI or GenAI policy visibility; responsible body or governance structure; privacy and data protection; human oversight and accountability; fairness, bias and discrimination; Kurdish-language inclusion; cultural representation and local values; misinformation, disinformation, deepfakes and digital trust; AI literacy or public awareness; complaint, appeal or redress mechanisms; and practical tools or implementation guidance. Each dimension was scored from 0 to 3: 0 = not publicly visible; 1 = indirect mention only; 2 = partial guidance; and 3 = clear AI-specific guidance.

3.6 Reliability and audit trail

To strengthen the reliability, transparency and reproducibility of the website analysis, the coding process was conducted by two independent researchers. Both researchers applied the same 11-dimension coding framework to the 20 selected institutional websites, using the 0–3 scoring rubric described above. Before coding, both researchers reviewed the coding framework, scoring definitions and evidence categories to ensure a shared understanding of the analytical criteria.

A conservative coding rule was applied throughout the analysis. General references to digital transformation, e-government, online services, public communication or institutional modernisation were

not coded as evidence of AI ethics readiness unless they explicitly addressed AI, GenAI, ChatGPT, algorithmic systems, responsible AI, automated decision-making or directly relevant governance mechanisms such as AI-related privacy, accountability, human oversight, bias mitigation or redress. This rule was used to avoid overstating the level of public-facing AI ethics readiness.

The two researchers first coded the sample independently. Initial inter-coder agreement was high, at 90.0% agreement, with Cohen's kappa of 0.85. This level of agreement indicates strong consistency in the interpretation and application of the coding framework. Discrepancies between the two coders were then reviewed item by item. Differences were discussed in relation to the evidence notes, original webpages and the scoring rubric. Final scores were assigned only after consensus was reached between the two researchers, resulting in 100% agreement on the final coded dataset.

This double-coding and consensus process reduced the risk of individual interpretive bias and strengthened the objectivity of the analysis. It also improved the audit trail by ensuring that each final score was linked to evidence notes, search terms, URLs, access dates and agreed coding decisions. The supplementary file provides the sample register, coding framework, evidence matrix, scoring summary, reliability documentation and related materials, allowing readers to examine how public-facing evidence was identified, interpreted and coded. The reliability procedure therefore supports the study's central aim: to assess public-facing AI ethics readiness in a transparent, cautious and reproducible manner.

3.7 Limitations

This study has several limitations. First, it is limited to publicly accessible websites and documents. Internal policies, unpublished guidance, staff training materials, procurement documents, technical system documentation and informal institutional practices may exist but were outside the scope of the analysis. The findings therefore assess public-facing visibility rather than the full internal AI governance capacity of the selected institutions.

Second, website content is dynamic. Pages may be updated, removed, reorganised or newly published after the search period. For this reason, the findings should be interpreted as reflecting what was publicly visible during the defined search period. Access dates and evidence notes were recorded to support transparency.

Third, the study uses a purposive sample of 20 selected institutional websites. The sample was designed to capture key public-facing sectors relevant to AI ethics and digital governance, including central government, digital transformation, education, public communication, health, justice, planning, statistics, social protection and local government. However, the sample does not represent every institution in the Kurdistan Region.

Fourth, search results may be affected by website structure, internal search functionality, language availability, indexing quality, document accessibility and the use of English, Kurdish or Arabic search terms. Although multiple search terms and website-search strategies were used, it is possible that some relevant public-facing materials were not identified.

Finally, this study does not evaluate the technical performance of AI systems, institutional AI adoption levels, staff capacity, public attitudes or the effectiveness of internal governance mechanisms. Future research could extend the analysis through interviews with policymakers, public-sector staff, educators, journalists, civil-society actors and technology professionals, as well as through technical testing of AI tools in Kurdish-language contexts.

Sector	Institution / website type	Example URL or source	Purpose in the study
Central government	KRG official portal	https://gov.krd/english/	General digital governance and public communication
Digital government	Department of Information Technology	https://gov.krd/dit-en/	Digital transformation and government digital services
Digital strategy	KRG Digital Transformation Strategy	https://gov.krd/dxs/	Digital strategy, data/privacy and GovTech direction
Public services	KRG Services / MyAccount	https://myaccount.gov.krd/en/	Citizen-facing digital services and identity/payment infrastructure
Legislature	Kurdistan Parliament	https://www.parliament.krd/english/	Law, regulation and accountability visibility
Executive	Presidency of Kurdistan Region	https://presidency.gov.krd/en/	Public values and governance communication
Education	Ministry of Education	https://gov.krd/moe-en/	Digital learning, AI literacy and language inclusion
Higher education	Ministry of Higher Education	https://gov.krd/mohe-en/	Research, academic integrity and GenAI visibility
Public communication	Department of Media and Information	https://gov.krd/dmi-en/	Misinformation, digital trust and public communication
Economy	Board of Investment	https://gov.krd/boi-en/	Digital economy and business governance
Health	Ministry of Health	https://gov.krd/moh-en/	Digital health, privacy and public service risks
Interior/security	Ministry of Interior	https://gov.krd/moi-en/	Digital identity, security and

Sector	Institution / website type	Example URL or source	Purpose in the study
			sensitive citizen data
Justice	Ministry of Justice	https://gov.krd/moj-en/	Rights, legislation and redress visibility
Planning/data	Ministry of Planning	https://gov.krd/mop-en/	Planning, statistics and data governance
Statistics	Kurdistan Region Statistics Office	https://krso.gov.krd/en	Public data and statistical transparency
Social protection	Ministry of Labour and Social Affairs	https://gov.krd/molasa-en/	Vulnerable groups, welfare and inclusion
Local government	Erbil Governorate/local services	official governorate/local website	Local service delivery
Local government	Sulaimani Governorate/local services	official governorate/local website	Local service delivery
Local government	Duhok Governorate/local services	official governorate/local website	Local service delivery
Education case	Selected public university/education case	institutional website	Institution-level GenAI and academic integrity visibility

4. Results

4.1 Overview

The analysis of the 20 selected websites reveals a consistent pattern: digital transformation is publicly visible, but AI-specific ethical governance is not yet clearly developed in the reviewed materials. Several websites included evidence of e-government, digital services, data systems, public communication platforms, education-related digital systems and administrative modernisation. However, explicit public-facing guidance on AI, GenAI, responsible AI, algorithmic accountability, human oversight, AI-related bias, deepfakes, misinformation and AI-specific complaint mechanisms was limited or not publicly visible during the search period.

4.2 Digital transformation was more visible than AI ethics governance

The clearest finding across the sample was public visibility of digital transformation. The KRG Digital Transformation Strategy presents digital transformation as a government priority and connects it with digital government, service delivery, data privacy and institutional modernisation. The Department of Information Technology website describes DIT as responsible for government digital services and digital transformation. These examples show that the Kurdistan Region has a visible foundation for digital government. However, digital transformation was rarely accompanied by explicit AI ethics guidance. Reviewed materials emphasised service efficiency, digital platforms and public-sector modernisation rather than how AI systems should be governed, who should be accountable, or how AI risks should be assessed.

4.3 AI-specific policy and GenAI guidance were weakly visible

Across the reviewed websites, direct references to AI, GenAI, ChatGPT, responsible AI or AI ethics were limited. Most institutional websites did not provide clearly visible AI-specific policy pages, responsible AI frameworks, GenAI guidance documents or public explanations of how AI should be used in public services, education, media, research or administrative decision-making. This creates uncertainty for several stakeholder groups: citizens may not know whether AI is used in public services; students and educators may not know what forms of GenAI use are acceptable; and public-sector staff may lack visible guidance on responsible AI procurement or deployment.

4.4 Privacy and data governance appeared more often than AI accountability

Privacy, data governance, cybersecurity, digital identity and secure service delivery appeared more frequently than AI-specific accountability. This indicates that some foundations for responsible AI exist within broader digital governance discourse. For example, digital transformation and digital identity initiatives show the relevance of personal data, authentication, service access and government data infrastructure. Nevertheless, these data-related materials were not usually connected directly to AI. The reviewed documents did not consistently explain how personal data should be used in AI systems, whether AI impact assessments are required, how algorithmic bias should be prevented, or how people can challenge AI-supported decisions.

4.5 Education-sector digitalisation was visible, but GenAI guidance was unclear

Education-related websites and public information show evidence of digital education platforms, e-learning systems, online resources, school-management tools or education-sector digitalisation. However, public-facing guidance on GenAI in education was not clearly visible across the reviewed materials. In particular, the analysis did not identify consistent public guidance on ChatGPT use, AI-assisted academic writing, student disclosure obligations, lecturer responsibilities, AI use in assessment, research ethics or academic integrity in the GenAI era.

4.6 Language, culture and trust were underdeveloped as AI ethics dimensions

Kurdish-language communication is visible across many public institutions, but Kurdish-language inclusion was not clearly framed as an AI ethics issue. This is important because AI tools may perform unevenly across Kurdish, Arabic and English, and may not reflect Kurdish cultural context adequately. Similarly, the reviewed websites often communicated general institutional values, but did not translate those values into AI-specific cultural representation safeguards. Guidance on AI-generated misinformation, deepfakes and synthetic media was also weakly visible, despite the importance of digital trust for public communication and media systems.

4.7 Redress and complaint mechanisms were not AI-specific

Some public-facing services include citizen interaction, service requests or complaint mechanisms. The Citizen Complaint System, for example, indicates that digital channels for citizen feedback are developing. However, AI-specific redress was not clearly visible. The reviewed materials did not consistently explain how a person could challenge an AI-supported decision, request human review, report AI-related harm, correct inaccurate data or obtain an explanation for automated or semi-automated processing.

Table 2

provides concrete examples of public-facing evidence identified during the website analysis.

Evidence example	What was publicly visible	Interpretation for results
KRG Digital Transformation Strategy	Digital transformation presented as a priority; strategy connected to GovTech, service delivery and data/privacy direction.	Strong digital-governance foundation, but not equivalent to AI-specific ethics guidance.
Department of Information Technology	DIT publicly described as responsible for government digital services and digital transformation.	Clear digital responsibility; AI-specific governance responsibility not clearly visible.
Citizen Complaint System	Online portal for citizens to submit complaints and receive feedback from government entities.	Useful foundation for accountability; AI-related redress not specified.
MyAccount / digital identity-related services	Citizen-facing digital financial/service access infrastructure.	Raises data protection and digital identity questions; AI-specific safeguards not visible.
Kurdistan Region Statistics Office	Public data and statistics are made available online.	Supports data transparency; AI-data governance and automated decision safeguards not visible.

Table 3

summarises the main readiness pattern across the reviewed websites. Full scoring details are provided in Supplementary File S1.

Dimension	Main pattern identified	Interpretation
Digital transformation	Visible across several institutions	Foundation exists for digital governance
AI/GenAI policy	Limited or not clearly visible	AI-specific governance remains underdeveloped publicly
Privacy/data	Partially visible	Can support future responsible AI policy
Human oversight	Weakly visible	AI accountability needs clearer explanation
Fairness/bias	Weakly visible	Bias and discrimination should be added to AI guidance
Kurdish-language inclusion	Visible as communication; weak as AI ethics	Language inclusion should be a core AI ethics dimension
Cultural representation	General values visible, but not operationalised for AI	Local values need translation into AI governance practice
Misinformation/deepfakes	Weakly visible	Digital trust should be strengthened
AI literacy/training	Limited AI-specific visibility	Public and institutional AI literacy needed
Complaint/redress	General channels may exist; AI-specific redress unclear	Future policy should include AI appeal and remedy
Implementation tools	Weakly visible	Institutions need usable guidance, not only broad principles

5. Proposed Kurdistan Public-Facing AI Ethics Readiness Framework

The findings indicate a need for a practical framework that helps public institutions move from general digital transformation toward responsible AI governance. The proposed Kurdistan Public-Facing AI Ethics Readiness Framework translates global responsible AI principles into a regional governance model. It is not intended to replace future AI legislation or internal institutional policies. Instead, it provides a public-facing readiness model that can help institutions make AI governance more visible, understandable, accountable and culturally responsive.

The framework is built from three sources: the AI ethics and governance literature, the empirical gaps identified through the 20-website analysis, and the specific Kurdistan Region context. Table 4 summarises how each framework pillar is derived from these three sources.

Framework pillar	Literature basis	Empirical gap found	Kurdistan-specific rationale
Governance visibility	AI governance requires clear who/what/when/how responsibility.	Responsible AI body not clearly visible.	Subnational governance needs clear public accountability.
AI policy and scope	Responsible AI policy requires defined scope and target audience.	AI/GenAI/ChatGPT guidance weakly visible.	AI use is growing before visible governance.
Privacy and data protection	AI governance depends on data safeguards and risk management.	Privacy/data appear, but not linked to AI.	Digital identity and service systems involve sensitive citizen data.
Human oversight	Human accountability is central to responsible AI.	Human review/appeal not specified for AI.	Public trust depends on accountable institutions.
Fairness and bias	Responsible AI requires bias mitigation and non-discrimination.	Fairness/bias not clearly visible.	Language, region, disability and access inequalities matter.
Kurdish-language inclusion	Inclusive AI requires language accessibility and low-resource language attention.	Kurdish visible as communication, not AI ethics.	Kurdish/Sorani/Kurmanji performance is a core local issue.
Cultural representation	AI may reproduce stereotypes and cultural defaults.	Local values not operationalised for AI.	Kurdish identity and community values need protection.
Digital trust	Deepfake and truth-technology literature stresses transparency and fact-checking.	Misinformation/deepfake guidance weakly visible.	Media/public trust is sensitive in digital society.
AI literacy	Responsible education requires stakeholder-specific AI guidance.	AI-specific training/awareness limited.	Students, staff, journalists and citizens need practical literacy.
Redress and accountability	Responsible AI requires complaint, correction and remedy.	General complaint systems exist but AI redress unclear.	Citizens need a route to challenge AI-related harms.
Implementation tools	AI policy must move from principles to practice.	Checklists/templates weakly visible.	Institutions have varied technical capacity; usable tools are needed.

5.1 Framework use

The framework can be used in three ways. First, as an assessment tool, institutions can review public websites and documents against the 11 pillars to identify what is visible, partial or missing. Second, as a policy-development tool, ministries, public agencies, educational institutions and media bodies can prepare AI guidance that is clear, practical and locally relevant. Third, as a research tool, future studies can apply the framework to compare institutions, conduct stakeholder interviews or evaluate changes over time.

5.2 Contribution of the framework

The framework contributes to AI ethics research by connecting responsible AI governance with the realities of a subnational, multilingual and culturally distinct region. It shows that AI ethics readiness should not be measured only by the presence of global principles. It should also be assessed through public visibility, institutional accountability, language accessibility, cultural representation, digital trust and practical implementation.

6. Discussion

6.1 Public-facing visibility as an ethical dimension

The central theoretical contribution of this paper is the argument that public-facing visibility should be treated as an ethical dimension of responsible AI governance. AI ethics is often discussed through principles, regulation, technical design and internal governance. However, for citizens and stakeholders, the first point of contact with governance is often a public website, policy page, service portal, guidance document or complaint channel. If AI-related guidance is not publicly visible, stakeholders may not know what rights, responsibilities, safeguards or remedies exist.

Public-facing visibility is not a substitute for internal governance, but it is a minimum condition for public accountability: citizens cannot understand, question or challenge AI governance mechanisms that are not publicly communicated. For this reason, visible guidance, accessible language, named responsibility and complaint routes should be treated as ethical features of responsible AI governance, not merely as communication details.

6.2 From digitalisation to AI governance

The results show that the Kurdistan Region has visible digital transformation activity, but AI-specific public guidance remains early-stage. This creates a transition gap. Digital transformation can improve efficiency and access, but it does not automatically create safeguards for AI. The region therefore needs to connect digital governance with AI-specific policy, human oversight, risk assessment, data protection, bias mitigation, public literacy and complaint mechanisms.

6.3 Localisation, language and culture

The findings also show why AI ethics must be localised. Kurdish-language inclusion and cultural representation are not optional additions. They are central to fairness, accessibility and trust.

Responsible AI guidance should be available in Kurdish and AI tools used in public contexts should be evaluated for Kurdish-language performance, cultural appropriateness and accessibility for different user groups.

6.4 Digital trust and misinformation

The weak visibility of guidance on misinformation, deepfakes and synthetic media is ethically significant. Generative AI increases the scale and plausibility of manipulated text, images, audio and video. Public institutions therefore need guidance on AI-generated content labelling, fact-checking, official information verification, deepfake reporting and citizen media literacy.

6.5 Practical implications

Public institutions in the Kurdistan Region should consider publishing clear AI and GenAI policy pages, identifying responsible governance bodies, linking data protection to AI use, requiring human review for sensitive decisions, creating complaint and appeal routes, publishing Kurdish-language AI guidance, and developing AI literacy programmes for public-sector staff, students, journalists and citizens.

6.6 Limitations and future research

This study is limited to selected public websites and documents. It does not assess internal policies, procurement systems, technical infrastructure, staff capacity or public attitudes. Future research should include interviews with policymakers, educators, public-sector workers, journalists, civil-society actors and technology professionals. Further studies could also test AI tools in Kurdish, examine public AI literacy, and compare Kurdistan with other subnational or multilingual regions.

7. Conclusion

This study examined public-facing AI ethics readiness in the Kurdistan Region through a qualitative analysis of 20 selected institutional websites and publicly accessible documents. The study focused on what is publicly visible to citizens, students, educators, public-sector workers, media actors and other stakeholders, rather than attempting to assess internal institutional practices. This distinction is important because responsible AI governance depends not only on internal rules, but also on whether guidance, accountability and safeguards are publicly accessible and understandable.

The findings show that the Kurdistan Region has a visible foundation for digital transformation. Public-facing materials indicate attention to digital services, e-government, public communication, data-related systems, digital identity, education platforms and administrative modernisation. However, AI-specific ethical governance remains limited, fragmented or not clearly visible across the reviewed materials. Explicit public guidance on generative AI, responsible AI, algorithmic accountability, human oversight, fairness and bias, Kurdish-language AI inclusion, cultural representation, misinformation, deepfakes and AI-related redress was weak or not publicly visible during the search period.

The central argument is that the Kurdistan Region is moving from digital transformation toward the need for responsible AI governance. Digital transformation provides an important foundation, but it does not automatically address ethical risks introduced by AI and generative AI. The proposed 11-pillar Kurdistan Public-Facing AI Ethics Readiness Framework offers a practical way to connect global responsible AI principles with local governance, language, culture and trust concerns.

The study contributes to AI ethics scholarship by highlighting the importance of subnational and multilingual regions in responsible AI governance debates. It also shows that public-facing visibility is itself an ethical issue. If AI guidance is not visible, accessible or understandable, citizens and stakeholders may not know what protections, responsibilities or remedies exist. For this reason, responsible AI in the Kurdistan Region should be public-facing, institutionally accountable, linguistically inclusive, culturally responsive and practically implementable.

Declarations

Funding: The authors declare that no external funding was received for this study.

Competing interests: The authors declare no competing interests.

Ethics approval: This study used only publicly accessible institutional websites and documents and did not involve human participants, private data or personal information. Formal human-subject ethics approval was therefore not required.

Clinical trial number: Not applicable.

Data availability: The public-facing website register, coding framework, evidence matrix, scoring summary, framework derivation table and submission checklist are provided in Supplementary File S1. Website content may change over time; access dates are recorded in the supplementary file.

Use of AI-assisted tools: AI-assisted tools were used to support language refinement, organisation and consistency checking. The authors remain responsible for the accuracy, interpretation, citations and final content of the manuscript.

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