

Scaling Artificial Intelligence in Lahore-Based Public Sector Organizations: A Qualitative Documentary Analysis of AI Governance, Human-AI Collaboration, and Workforce Readiness

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Abstract: *This study examines the scaling of AI in public sector organizations in Lahore by qualitatively analyzing AI governance, human-AI collaboration, and workforce readiness through a documentary analysis. The study is based on official secondary data associated with the public safety and policing system of Punjab such as public documents of Pakistan's National Artificial Intelligence Policy, Punjab Safe Cities Authority, Punjab Information Technology Board and digital systems associated with the policing system of Punjab. This study is needed because despite the fact that AI is increasingly being touted as an integral component of public-sector modernization, it is not always understood that the governance and workforce systems that enable AI adoption are not clearly described in public documents. PITB showcases Punjab Safe City, which is an AI-based facial recognition and vehicle number plate recognition initiative to assist law enforcement. PSCA outlines AI enabled surveillance, smart traffic management, real-time emergency response, and various AI initiatives such as predictive policing, characteristic object recognition, AI enhanced number plates and AI detection models. It features an AI based e-challan system that employs computer vision and custom CNN architectures to identify traffic violations and aid electronic ticketing. Thematic analysis is employed to analyze the interpretation of the documents on AI scaling, governance, human oversight, and staff readiness. The expected contribution is to demonstrate that official documents strongly position AI as a means of efficiency, surveillance, enforcement, and improvement of service. But there is still a need to pay more attention to transparency, accountability, protection of citizens' privacy, appeal facilities and training of staff. The study concludes that for the scaling of AI responsibly in the public sector in Lahore, it is not only essential to have advanced systems but also to have visibility of governance, trained human users, and clear communication with the public.*

Keywords: Artificial intelligence, AI governance, public sector, human-AI collaboration, workforce readiness

Chapter 1: Introduction

AI is emerging as a key enabler for transformation in the public sector of Pakistan. It is now being applied in fields like surveillance, traffic monitoring, facial recognition, vehicle number plate recognition, digital complaint system and public assistance system. In Punjab, AI applications can be seen particularly in the field of public safety and policing in Lahore. This study is done by using AI scaling in public sector organizations in Lahore by using official secondary documents. AI governance, human-AI collaboration and workforce readiness are the primary areas of focus.

Three public-sector cases, namely, Punjab Information Technology Board, Punjab Safe Cities Authority and Punjab Police, will be examined in this study through public documents. The reason these organisations are appropriate is that official information reveals their involvement with police, surveillance, traffic enforcement, and citizen support that involve the use of AI. For instance, the official page of PITB has mentioned that Punjab Safe City is an initiative of PITB and Punjab Police, and the system is based on Artificial Intelligence (AI) Face recognition and Vehicle Number Plate recognition (Punjab Information Technology Board [PITB], 2024). Predictive policing, intelligent traffic management, characteristic-based object recognition, AI-featured number plates, and AI-based detection models are also AI projects mentioned in PSCA's official website (PSCA, n.d.).

1.1 Background

This topic is part of a larger landscape of the integration of AI into public governance. AI helps governments optimize service provision, enhance public safety, manage traffic flow, respond to emergencies and conduct digital governance. The National Artificial Intelligence Policy also provides that assistance for this direction in Pakistan. According to the policy, Pakistan requires responsible adoption of AI, awareness, readiness of the workforce, secure AI systems, and ethical governance. It also connects AI to the enhancement of public service and institutional modernization (Ministry of IT and Telecommunication [MoITT], 2025).

AI applications can be seen in public safety systems in Punjab. Punjab Safe City is a system designed by PITB in collaboration with Punjab Police to assist law enforcement officers with the help of Artificial Intelligence (AI) facial recognition and vehicle number plate recognition (PITB, 2024). PSCA presents additional public evidence. According to its official website, PSCA has AI-powered surveillance, intelligent traffic management, real-time emergency response, and digital crime monitoring (PSCA, n.d.). According to its AI-powered e-challan page, it has a computer vision and custom convolutional neural network architectures that detect 19 traffic violations. Helmet detection, seatbelt use, mobile phone use while driving, red signal violations, wrong way driving and over-speeding (PSCA, 2024).

Punjab Police is also a part of this AI Ecosystem. The official website features a page dedicated to PITB's AI-driven solution for Punjab Police, linking it to crime prevention and public safety (Punjab Police, 2024). Safe City Khidmat-i, another AI-powered chatbot developed by PSCA for providing round-the-clock assistance to the public digitally, has been mentioned in the Punjab Police statutory annual report 2024-25 (Punjab Police, 2026). Based on these official sources, it is proved that information on the topic is available in public for secondary qualitative analysis.

1.2 Problem statement

While AI is being applied in public safety and policing in Punjab, there are still gaps in understanding how AI governance, collaboration with AI and readiness of the workforce are articulated in public documents. AI tools, surveillance systems, traffic enforcement, facial recognition, number plate recognition and digital public assistance are all clearly outlined in official sources. They are less transparent, however, on how risks associated with AI are managed, how it is ensured that there is human oversight, how accountability is managed and how public-sector staff are equipped to engage with AI-supported systems.

This poses a problem for research. The impact of AI adoption is evident, whereas the AI adoption governance and workforce systems are not as transparent. For instance, PSCA refers to AI-powered surveillance and computer vision-based traffic violation detection, but there is a need for a deeper analysis of the public documents to understand how they pose issues of transparency, responsibility, privacy, public trust, staff readiness, and human review (PSCA, 2024). Hence, it will not be possible to say that AI governance is good or bad in this study. Rather, it will examine the current official publications regarding the AI governance and workforce readiness.

1.3 Research gap

Past debates on AI governance tend to be either national policy, technical innovation or general ethics. The National AI Policy of Pakistan explicitly mentions fairness, transparency, accountability, privacy, security, public awareness, workforce development and ethical usage of AI (MoITT, 2025). But there is not much qualitative study available regarding the way these issues of governance and readiness are represented in the official documents of Lahore-based public sector organisations.

The importance of the gap is that the use of AI in the public sector has a direct impact on citizens. AI-powered policing, traffic monitoring, facial recognition and e-challan systems are not just technical systems. They also include public trust, public legal responsibility, institutional capacity, and human decision making. AI systems are documented in existing official documents, but do not necessarily document how these systems are understood, regulated and supported by trained staff. This study fills this gap by analyzing official secondary data qualitatively to present the meanings and patterns that can be seen in the data.

This study seeks to investigate the public-sector organizations in Lahore to understand the official presentation of the scaling of AI in public-sector contexts in relation to AI governance, human-AI collaboration, and workforce preparedness in the public sector.

Research objectives

The objectives of this study are:

1. To examine how selected Lahore-based public-sector organizations describe AI adoption and scaling in official public documents.
2. To analyze how AI governance themes such as transparency, accountability, privacy, security, and human oversight appear in the selected documents.
3. To explore how human-AI collaboration is presented in AI-enabled policing, surveillance, traffic enforcement, and citizen support systems.
4. To identify how workforce readiness and institutional capacity are discussed or underexplained in the available secondary data.

Research questions

The study answers the following research questions:

1. How do Lahore-based public-sector organizations present AI adoption and scaling in their official public documents?
2. What AI governance themes are visible in documents related to AI-enabled public safety, policing, and traffic enforcement?
3. How is human-AI collaboration presented in public-sector AI systems?
4. What remains unclear about workforce readiness and institutional capacity in the available public documents?

1.4 Significance of the study

This study has academic, practical and policy significance. Academically, it contributes local qualitative evidence to the burgeoning debate around AI governance in public sector contexts. Documentary analysis is also emphasized, as the study draws on the official public communication of AI governance in the documents of organisations.

In practical terms, the study can assist public-sector managers to know if AI communication is balanced. Technology, efficiency and innovation are frequently mentioned in public documents. But, with responsible AI, there needs to be a clear understanding of governance, human oversight, accountability, and employee preparedness. The study can thus be used to pinpoint the areas that are weaker in public communication and the areas that need to be improved.

The study is valuable for policy makers as Pakistan's National AI Policy has a focus on ethical AI, workforce development, modernisation of institutions, and responsible improvement of public services (MoITT, 2025). The study can demonstrate the representation of national AI objectives in local public-sector communication by analysing the AI documents in the public sector in Punjab.

Chapter 2: Literature Review

2.1 Introduction

This chapter explores the literature on the scaling of Artificial Intelligence in public sector organizations of Lahore. It covers key concepts, theory, prior studies, thematic patterns, critical comparisons, research gap and conceptual framework. The review maps the literature on AI governance in the world and official documents in the public sector in Pakistan. It's not just about what AI can do, it's about how public organizations govern AI, how humans interact with AI systems, and how staff readiness can help with responsible scaling of AI.

Artificial Intelligence is a digital system which can be used for prediction, recognition, classification, monitoring, automation and decision support. AI can assist citizens with services, policing, traffic control, surveillance, emergency response, and administrative decision-making in public-sector environments. According to Wirtz et al. (2019), AI in the public sector can add value in four areas: automation, service delivery, information processing and decision support – but also poses challenges such as privacy, trust, accountability, skills and legal control.

AI governance refers to the guidelines, frameworks, accountability, and procedures that direct the safe and responsible application of AI. It encompasses transparency, accountability, fairness, privacy, security, risk management, as well as human oversight. Birkstedt et al. (2023) state that the amount of research on AI governance has increased due to the necessity of shifting from principles to practice. This concept is relevant for the current research as public sector AI has a first-hand impact on citizens, particularly within the context of police work, surveillance, and traffic regulation.

Human-AI collaboration is the manner in which humans and AI systems interact. Whilst AI can detect, predict, classify or recommend, it is the responsibility of the human officers, managers and public servants to review, decide and take responsibility. Workforce readiness is both the capacity for public-sector workers to use AI systems safely, ethically, and effectively, and the need for such capacity. It encompasses digital competence, data literacy, decision-making, training and awareness of the risks of AI.

2.2 Theory guiding the study

The two lenses of theory that are used in this study are connected. The first is governance of AI that is responsible. Responsible AI governance encompasses structural, relational and procedural practices, as Papagiannidis et al. (2025) explain. Structural practices encompass rules, policies, roles and formal controls. Communication, trust and stakeholder responsibility are all examples of relational practices. Monitoring, review, risk assessment and evaluation are examples of procedural practices. The use of this lens is appropriate as the study will explore the ways in which public documents represent governance, responsibility, and readiness.

The second view of the lens is automation-augmentation view. As outlined by Raisch and Krakowski (2021) AI generates a contradiction between automation and augmentation. Automation is the use of machinery to perform tasks. Augmentation is where AI aids human efforts and enhances human decision-making. This lens is relevant to the current topic as it is possible that public-sector AI systems can automate detection, recognition, or monitoring, while public officers are still involved in the decision-making process. So the study will deduce the nature in which AI is shown as a substitute for human judgment or a facilitator for human judgment.

2.3 Prior studies and official context

Previous research indicates that the use of AI in the public sector has the potential to enhance efficiency, service quality, and decision-making support; however, it also poses concerns. Wirtz et al. (2019) list some applications of AI in the public sector and pinpoint some of the challenges associated with them, including legal issues, ethics, privacy, transparency, acceptance, and organizational capacity. This is in addition to the need to learn governance and readiness – not just technical use.

There is also literature around AI governance that highlights that ethical principles are often more easily said than done. Research on AI governance is still in its infancy, particularly regarding implementation, as pointed out in Birkstedt et al. (2023). This is important because public sector AI documents could talk about innovation and efficiency but not necessarily go into depth on accountability, fairness, human oversight or public protection.

Responsible AI is a national priority in Pakistan as demonstrated in the official policy. The National Artificial Intelligence Policy emphasises the necessity for workforce development, institutional modernisation, ethical governance of AI, responsible use of AI, human rights

protection, and alignment with the rule of law in Pakistan (Ministry of IT and Telecommunication [MoITT], 2025). The policy also demonstrates that AI is not solely a problem for the private sector. It is a component of public-sector reform and national planning for development.

According to the official sources of Punjab, there is already a presence of AI in public safety and policing. According to PITB, Punjab Safe City is a project by PITB and Punjab Police which utilizes Artificial Intelligence (AI) powered facial recognition and vehicle number plate recognition (VNR) technology. PSCA also showcases AI based public safety systems such as predictive policing, intelligent traffic management, characteristic based object recognition, AI based number plate recognition and AI based detection models (PSCA, n.d.). Its AI-powered e-challan page mentions that computer vision, along with custom convolutional neural network (CNN) architecture, is used for traffic violation detection (PSCA, 2024). The statutory Annual Report of the Punjab Police also mentions AI-based traffic management and Safe City Khidmat-i, an AI-powered chatbot created by PSCA to help the public.

2.4 Thematic synthesis

The first theme in the literature is modernization of the public sector with the help of AI. There is consensus in the research and official documents that AI can be beneficial for monitoring, service delivery, analytics, and decision support. This can be seen in Punjab in the form of AI-powered Safe City, e-challan, face recognition, number plate recognition and Chatbot services.

The second theme is Governance Risk. AI in public safety can impact citizens, movement, surveillance, fines and policing decisions and is powerful for this reason. Literature emphasises privacy, transparency, accountability, fairness and human oversight. Ethical governance and protection under the rule of law are also official policy in Pakistan (MoITT 2025). This implies that governance safeguards are also important determinants of the value of AI scaling.

Human-AI collaboration is the third theme. As per the literature AI works best to complement human judgment and not to replace it completely. In the public sector setting of Lahore, AI can recognise faces, number plates, traffic violations, or queries from citizens, but public workers must be trained, make judgments, review and be responsible.

The fourth theme is "workforce readiness. Jaiswal et al. (2022) state that to adopt AI, there is a need to improve digital skills, data analysis, decision-making, and continuous learning. This is pertinent because public-sector AI systems require trained personnel to interpret, use, and ensure the accuracy of the AI-generated results.

2.5 Critical comparison

The literature and official documents agree that AI has the potential to enhance the performance of public sector. But there is a slight difference in focus. There is a strong emphasis on risks, ethics, governance, accountability and human readiness in academic studies. Official public-sector documents tend to emphasize more the features of the system, the benefits, the detection capability and the improvements in public services. This difference is important. It indicates that official documents might reveal what AI systems actually do, but can be less specific to risks and how these are governed, and staff preparedness.

There is another mismatch, between policy-level ambition and organisation-level evidence. On the wide-ranging topic of ethical governance and workforce development, the National AI Policy mentions it. But there's a need for closer analysis of public documents from certain

organizations to see how these ideas manifest in actual communication. This is where documentary analysis comes in handy.

The key gap identified is that existing literature covers AI governance and public-sector AI at a high level; and there is limited qualitative evidence of how Lahore-based public-sector organizations describe AI governance, human-AI collaboration and workforce preparedness in their official documents. There is official data available that demonstrates the deployment or exposition of AI systems in work within the public sector. It is not clear how governance, human supervision, staff training, accountability and ethical protection is communicated.

2.6 Conceptual framework

The conceptual framework contains four interrelated components. The first is AI scaling which comprises of facial recognition, number plate recognition, e-challan, predictive policing, traffic systems and AI chatbots. The second is AI governance, which includes transparency, accountability, privacy, security, fairness, and human oversight. The third is human-AI collaboration, which looks at how AI systems can be used to augment public officers and decision making. The fourth is workforce readiness, comprising of training, digital skills, awareness and institutional capacity.

It is assumed in the framework that when governance, human collaboration and workforce readiness are all visible, then the scaling of AI is responsible. Scaling of AI systems without clear governance and staff readiness can lead to a loss of public trust and accountability.

This chapter covered key concepts, theory, previous research, official context, themes, critical comparison, research gap and conceptual framework. The review reveals that the role of AI in public sector organizations of Lahore is a crucial research area as it is related to technology, police, governance, public trust, and readiness of work force. The methodology of the analysis of official secondary documents will be explained in the next chapter.

Chapter 3: Methodology

3.1 Research Design

The qualitative documentary research design was adopted in this study using secondary data analysis. It's not about the numbers measuring the success of artificial intelligence systems. Rather, the paper examines the ways in which public-sector organisations in Lahore depict AI governance, human-AI collaboration and workforce preparedness in official public documents. The design is appropriate as the research questions aim at meanings, patterns and themes in written documents.

Thematic analysis is the predominant method of analysis for the study. Thematic analysis was chosen as it would allow the repeated ideas, meanings and patterns in qualitative data to be uncovered. Thematic analysis is a flexible approach to identifying, analysing and reporting patterns in data, as outlined by Braun and Clarke (2006). The themes will be explored from official documents in this study, specifically from web pages of government agencies, policy documents, project web pages and statutory reports.

3.2 Secondary Data Justification

The use of secondary data in this study is appropriate as the organizations selected in this study already have relevant official materials related to AI-related public-sector systems. The study

doesn't require interviews or surveys as it is not the intent to gather private opinions of employees or citizens. The goal is to gain insight into the public discourse around AI scaling, AI governance, human-AI collaboration and workforce readiness in official documents.

Documentary analysis is a legitimate qualitative approach since documents can offer stable and accessible indications of organizational priorities, programs and public communication. Documents can be a systematic source of qualitative evidence and can be used to support interpretation when carefully examined, says Bowen (2009). This is also significant for the current research as the documents used are from authentic government and public sector websites and not from informal third-party blogs.

3.3 Data Sources

The data was obtained from the official secondary sources. These include the Punjab Information Technology Board website, Punjab Safe Cities Authority website, Punjab Police website and statutory annual report and the National Artificial Intelligence Policy issued by the Ministry of IT and Telecommunication of Pakistan.

Finally, the PITB source is relevant because it mentions that the Punjab Safe City is an initiative of PITB and Punjab Police and that they are using AI-based facial recognition and vehicle number plate recognition. This directly contributes to the study's emphasis on public safety and policing with the assistance of AI.

The PSCA source is relevant since the official AI-powered e-challan page claims that the system leverages computer vision, custom convolutional neural network architectures, local PSCA data and real-time processing to detect traffic violations. It further states that the system relates to the city's surveillance system and it is designed to be expandable in terms of traffic enforcement.

The National AI Policy is relevant as it sets the broader policy landscape for the responsible use of AI in Pakistan. The policy connects AI to the responsible and ethical use of AI, workforce enhancement, institutional modernization, privacy, security, accountability, and public service enhancement.

3.4 Selection Criteria

The documents were selected using clear inclusion and exclusion criteria. The inclusion criteria are:

1. The document must come from an official government, public-sector, or policy website.
2. The document must relate to AI, digital governance, public safety, policing, traffic enforcement, surveillance, citizen services, workforce readiness, or responsible AI.
3. The document must be publicly accessible.
4. The document must provide evidence relevant to the research questions.
5. The document should be recent where possible, especially for active AI systems and policy direction.

The exclusion criteria are:

1. Unofficial blogs, social media posts, and private commentary will not be used as main data.

2. News articles will not be used as primary evidence unless needed only for background.
3. Documents with unclear authorship or unverifiable origin will be excluded.
4. Documents that do not relate to AI governance, human-AI collaboration, workforce readiness, or public-sector AI scaling will not be included.

3.5 Sampling Strategy

Purposive sampling and criterion sampling were used in the study. It is appropriate to use purposive sampling as the documents are chosen for their relevance to the topic. Also, criterion sampling is appropriate as every document is first subjected to the inclusion criteria and then analyzed. The study does not pretend to be comprehensive of all the public sector AI initiatives in Pakistan. Rather, it highlights documents that can aid in providing answers to the research questions relating to scaling of AI in public-sector organizations in Lahore.

Official project pages, policy documents, public-sector reports, as well as organizational web pages will be expected to be included in the sample. Where information is duplicated in two documents, the most recent or more detailed document will be preferred. This will prevent unnecessary repetition and help focus the analysis.

3.6 Data Analysis Steps

Thematic analysis was used to analyse the data. The first step is going to be familiarization. The researcher will carefully read each document and document key words, claims and repeated ideas pertaining to AI governance, human-AI collaboration, and workforce readiness.

Initial coding was the second step. Codes can include facial recognition, number plate recognition, traffic violation detection, surveillance, public safety, citizen assistance, privacy, security, accountability, transparency, human oversight, staff training and institutional readiness.

The third step was organize similar codes into groups. For instance, the privacy, security, accountability and transparency codes can be clustered under AI governance. Some codes like officer review, decision support and public assistance can be clustered as human-AI collaboration.

Theme development was the fourth step. Themes could be AI as public service modernization, AI governance as safety and control, human-AI collaboration in enforcement, workforce readiness as a policy need. The fifth step will be the review of the theme. Each Theme will be reviewed for Evidence to ensure it is supported by the original documents. The final step will be to interpret. The results will give meaning to the themes and provide an answer to the research questions.

3.7 Trustworthiness

Trustworthiness was ensured by credibility, dependability, confirmability and the transparency. Original official documents and corroboration of evidence on multiple public sources was used to support credibility. Document selection, coding and theme development was clearly documented to support dependability. Confirmability was achieved by providing evidence from documents rather than opinions. Transparency was achieved by describing the entire analysis process. According to Nowell et al. (2017), qualitative researchers need to demonstrate a clear and systematic analysis process to enable readers to assess the credibility of findings.

3.8 Ethical Considerations

The data used in this study were in the public secondary data. It does not gather information from human subjects that is private. Thus, consent, anonymity and confidentiality in interviews is not required. But good care is still needed. The study was appropriately cite all the sources and will not misrepresent or quote any official documents or make statements that are not supported by evidence.

The study was also not consider public-sector AI systems to be successful, fair, or well-governed unless documents make this clear. This analysis will focus only on the public presentation of AI governance, Human-AI collaboration and workforce readiness. This is crucial because the official documents are made for public communication and do not necessarily reflect internal practice.

This chapter has provided information about the research design and methodology that has been used in the study. This study is a secondary qualitative study using a documentary analysis approach with a thematic analysis. The data was derived from policy and public-sector documents pertaining to AI-powered policing, surveillance, traffic enforcement, and public services in Punjab. Purposive sampling, criterion sampling, clear sampling criteria, step-by-step coding and trustworthiness procedures are used in the study. Ethical concerns were addressed via proper utilization of public records, correct citation and careful interpretation.

Chapter 4: Findings and Analysis

The result of the qualitative documentary analysis of the official secondary data is presented in this chapter. The analysis is done on the available documents of Punjab Information Technology Board, Punjab Safe Cities Authority, Punjab Police, and National AI Policy of Pakistan. The results are reported as themes, rather than as straight summarizations of documents. These themes are the researcher's interpretations of the pre-existing data. Hence, it is not the chapter's intention to demonstrate in-house practice within the organisations. It provides insights on the presence of AI governance, human-AI collaboration, and workforce readiness in official public documents.

4.1 Theme 1: AI is presented as a tool for scaling public safety and law enforcement

The first theme indicates that AI is introduced as a tool for modernization in the public sector. According to the official documents, AI was used to enhance public safety, policing, traffic management, and monitoring of the city. According to PITB, Punjab Safe City is an initiative of PITB and Punjab Police under which the AI based facial recognition and vehicle number plate recognition is being utilized. It demonstrates that AI is not just a technical experiment, but also a part of the modernization of law enforcement.

PSCA is a broader picture of public safety. According to its official website, the Safe Cities Project employs AI-powered surveillance, intelligent traffic control, real-time emergency response, smart traffic and digital crime monitoring. It also mentions AI initiatives like predictive policing, intelligent traffic management, characteristic-based object recognition, 21 traffic violations, AI featuring number plates and AI-based detection models.

This theme addresses Research Question 1: What are the representations of AI adoption and scaling in public-sector organisations in Lahore? The answer is that AI is described as a massive public safety system linked to surveillance, traffic enforcement, identification, monitoring and emergency response. The meaning matters because the documents depict AI

as a part of institutional change. But the public documents are more about the capacity of the systems and the benefits of public safety, rather than the social hazards of implementing AI on a large scale in policing.

4.2 Theme 2: AI governance appears through security, enforcement, and system control language

The second theme demonstrates that AI governance can be seen, and is mostly done through enforcement and language control. The documents do not provide a comprehensive AI governance framework that includes specific rules for bias, accountability, appeals, human oversight, or audit processes. Rather, governance is demonstrated in terms of concepts like public safety, secure monitoring, traffic discipline, electronic enforcement, real time processing, and system integration.

According to PSCA e-challan page, the system is based on a custom convolutional neural network architectures that are trained on PSCA data locally collected and annotated using computer vision. It also claims to be optimized for real-time processing and runs on in-house GPU servers. It's significant evidence as it demonstrates that public documents are technically governed by local data, real-time processing, and in-house deployment.

According to the same PSCA source, the system is compatible with the existing city surveillance infrastructure and is scalable for traffic enforcement. This indicates that there is a correlation between governance and operational control, monitoring capacity and enforcement efficiency. But the document is not clear about how false detections are looked upon, how citizens can challenge the e-challans issued with the support of AI, or how the accuracy of the algorithms is independently verified.

This theme addresses Research Question 2: What AI governance themes can be seen? The themes that are apparent are system control, enforcement efficiency, data use, security infrastructure and public safety. Algorithmic transparency, independent audit, privacy safeguards, bias control and citizen appeal mechanisms are missing or weaker themes. The interpretation is that governance exists, but that it is largely operational and does not have a rights-based orientation.

4.3 Theme 3: Human-AI collaboration is presented as AI-supported monitoring and enforcement

The third theme illustrates that human-AI collaboration exists, albeit in a rather indirect way. The documents indicate that AI systems are designed to assist police and public safety personnel to detect, recognize, monitor and flag information. It's a page on PITB's website that links AI facial recognition and vehicle number plate recognition to law enforcement. The official page of Punjab Police also mentions PITB's AI-powered system for Punjab Police which includes facial recognition and automated number plate recognition.

A better illustration of this collaboration can be seen on the PSCA e-challan page. It says that AI can automate the detection of traffic violations and send electronic tickets. It also says this saves law enforcement from manual monitoring, freeing them up to work on other key duties. This is a good illustration of human-AI cooperation as AI takes care of the detection and monitoring, while the human law enforcement is still linked with the broader enforcement tasks.

This theme addresses Research Question 3: What is the representation of human-AI collaboration in AI systems in the public sector? The solution offered is how AI can help the public officers with automatic detection, monitoring and traffic control. What this means is that AI is used as a tool to augment human officers, rather than replace them entirely. The documents don't, however, specify where human officers intervene in the work of AI, how mistakes are fixed, or who is responsible when AI-driven enforcement impacts a citizen.

4.4 Theme 4: Workforce readiness is important but underexplained in organization-level documents

The fourth theme is workforce readiness is more evident in the national policy level documents than in the document samples chosen at the organization level. National AI Policy of Pakistan emphasizes on awareness and preparedness, skill of workforce, training, ethical governance of AI, modernization of institutions, and responsible adoption of AI. The policy also provides that national and provincial IT boards can contribute to transformation by raising awareness and providing training programs in the form of a sectoral collaboration.

This policy evidence does demonstrate that the need to be workforce ready is officially acknowledged for the adoption of AI in Pakistan. The public-sector documents reviewed for this study, however, tend to be more oriented towards AI systems, surveillance, traffic violations, recognition tools, and public safety outcomes, all of which are located in Lahore. They give less information on staff training, officer AI literacy, protocols for system-use, training for human oversight, or ethical decision making in policing with the help of AI.

This theme addresses Research Question 4: What are the unknowns around workforce readiness and institutional capacity? The answer is that while workforce readiness is important, documented at the policy level, it is not explained in depth at the organization level. The takeaway is that AI scaling can be seen, but human capability that powers AI scaling is not necessarily seen. This is a big discovery as responsible use of AI in policing and public safety requires trained human users as well as robust technical systems.

4.5 Overall interpretation of findings

The results indicate that AI is being shown publicly as a potent instrument for public safety, traffic enforcement, surveillance, and modernization of the law enforcement system in Lahore and Punjab. The most prominent examples are in official descriptions of AI-powered number plate recognition, AI-powered e-challan, predictive policing, intelligent traffic management and AI-based detection models, all of which use AI to identify faces.

Simultaneously, there is a significant imbalance in the analysis. There is more detail in public documents regarding the capabilities of AI systems, and less about the governance of AI risks. The documents are more specific about detection, automation, infrastructure and enforcement as opposed to transparency, accountability, privacy, appeal rights, staff training and independent review. That doesn't mean that those safeguards aren't in place. It does not imply that they are not being presented in some public documents reviewed, but that they are not being clearly presented.

The four themes from the secondary qualitative analysis were presented in this chapter. AI is introduced as a means to scale public safety and law enforcement. Secondly, AI governance exists primarily as security, enforcement and system control language. Third is the human-AI collaboration, which is offered as AI-assisted monitoring and enforcement. Fourth, workforce readiness is a critical, but under-defined topic in organization-level documents. These findings

indicate that the public-sector AI in Lahore has a strong focus on modernization and efficiency, with a need for more in-depth explanation regarding public communication on governance, accountability, and workforce readiness.

Chapter 5: Discussion, Conclusion, and Recommendations

In this chapter, the meaning of the results of the qualitative documentary analysis will be discussed. The goal of this research was to understand the public-sector organizations' approach to public communication of the scale of AI, specifically in relation to AI governance, human-AI collaboration, and workforce readiness, in the context of the city of Lahore. The chapter includes findings that are compared to the literature, a discussion of theoretical implications, conclusions, recommendations, limitations and directions for future research.

5.1 Discussion and Meaning of Findings

The first big discovery is that AI is being offered as a public safety, surveillance and traffic enforcement scaling tool. PITB Safe City is a project of PITB and Punjab Police, which is based on AI Facial Recognition and Vehicle Number Plate Recognition. This indicates that while AI is being marketed as a public safety and law enforcement modernization tool, it is not just technically experimental. PSCA also showcases AI in its various public-facing services, including AI-driven surveillance and e-challan enforcement, which uses automated traffic violation detection to issue electronic tickets.

This discovery is in line with Wirtz et al. (2019), who suggest that AI in the public sector can be utilized for automation, service improvement, information processing and decision support. But the discovery also reveals a troubling aspect. The official documents describe the capabilities of the systems but lack detail of the governance of risks. This implies that the public sector AI discourse is primarily concerned with efficiency, control and service improvement, with issues of citizen rights, appeal mechanisms, algorithmic accuracy and independent review being less prominent.

The second is that AI governance is mostly manifested in terms of operational control, security and enforcement language. According to PSCA's e-challan page, the system of issuing e-challan involves AI-based surveillance to spot traffic violations. This is a governance model that is more about enforcement, with AI associated with monitoring, discipline, and public safety. The official ANPR page of PITB also mentions that the use of AI for automated number plate recognition helps in monitoring and identifying vehicles concerning criminal activities.

This substantiation aligns with Birkstedt et al. (2023), who argue that the ethical principles and implementation of AI governance still face a chasm. While the documents demonstrate the practical implementation of AI, they do not comprehensively demonstrate how ethical governance is implemented. This stands in contrast to the National AI Policy for Pakistan, which provides more general focus on ethical governance of AI, skill building, modernizing institutions, and harmonizing with international norms. The disparity could be due to the fact that the content of policy documents is supposed to reflect national principles, and the content of project pages is supposed to reflect public systems and services.

The third finding is that human-AI collaboration is shown in the form of AI-supported monitoring and enforcement. AI is demonstrated to assist public officers by recognizing faces, number plates, aiding traffic enforcement and enhancing public safety operations. This finding

is very much related to the automation-augmentation paradox of Raisch and Krakowski (2021). What AI does in this study is to automate the detection task, but also to augment the public sector work by providing officers with information for action in a timely manner.

What it means is there's no claim that AI will replace public-sector employees. It is rather offered as a mechanism of monitoring, identification and enforcement. The official documents examined, however, do not make it obvious where human oversight is necessary, how AI mistakes are corrected and who is responsible when AI-assisted decisions impact citizens. This is significant as human-AI partnerships should involve human judgment, oversight, and accountability as well as technical support.

The fourth is that readiness of the workforce is more clearly recognized at policy level than in project documents at organization level. Workforce development and institutional modernization are mentioned in the National AI Policy under Pakistan's direction for AI. The project documents reviewed, however, are more oriented towards the features of the systems like facial recognition, ANPR, e-challan and surveillance in public sector. They give less information regarding staff training, AI literacy, ethical decision-making, and workforce preparation.

5.2 Theoretical Implications

The study reinforces the lens of responsible governance of AI by demonstrating that AI scaling must be examined from the perspective of governance, accountability, privacy, transparency, human oversight, and readiness of the workforce. The results indicate that there is a high level of technical and operational scaling in the public documents, and a low level of disclosure of the complete governance process.

The study also lends itself to the automation-augmentation view. The results indicate that while AI can automate detection and monitoring, public officials are crucial for enforcement, supervision, and decision-making. This implies that AI governance in public sector organizations should not be all about technology. It should also be centered around the human aspect of technology.

5.3 Conclusion

The study finds that public AI presented by Lahore-based public-sector is as a tool of public safety modernization, traffic enforcement, surveillance and support to digital public service. The most compelling use cases are in the official description of the facial recognition, number plate recognition, AI-powered e-challan and AI-supported public safety systems. The documents, however, are less specific about governance protections, human review, accountability, citizen appeal mechanisms and workforce preparedness.

This paper's contribution lies in the local qualitative evidence it contributes to the research field of AI governance in the context of the public sector in Pakistan. It demonstrates how documentary analysis can be useful to identify what is made salient or obscure in public discourses of AI.

5.4 Recommendations

It is important for public-sector organisations to articulate AI governance in official documents in a more precise manner. They need to outline how decisions made with the aid of AI are audited, how mistakes are righted, and who is responsible for the outcomes of the system.

Second, there is a need for more transparency and information on privacy, transparency, the right of appeal by citizens and the responsible use of data on the AI project pages. This is particularly critical for solutions that are connected to policing, surveillance and traffic enforcement.

Third, there is a need for a more direct reporting of workforce readiness. Staff training, AI literacy initiatives, human oversight positions, and ethical guidelines for decision-making should be explained.

Fourth, policy makers should promote a public-sector AI reporting system. Departments can use this framework to consistently communicate about the use of AI, the risks, safeguards, and readiness of the workforce.

5.5 Limitations and Future Research

This study is limited since it is based only on public secondary documents. The documents were not originally designed for this research question and do not provide a detailed explanation of governance/workforce issues. The study can also verify internal practice, staff experiences or citizens' perceptions.

Future studies may involve interviews with representatives from the public sector, representatives of the system, legal professionals, and citizens. Subsequent research can also gauge the impact of introducing AI-powered policing and traffic management systems in Lahore compared to other cities in Punjab or explore how citizens perceive the trustworthiness of such systems.

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