

Living With Artificial Intelligence in Pakistan: A Sociological Review of Ethical and Social Implications

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Abstract

AI or Artificial Intelligence is changing quickly the way economies and political societies operate worldwide creating new jobs and development opportunities as well as huge sociological problems. The purpose of this review article is to look critically at how AI will change the Pakistani work environment from various viewpoints of labor, surveillance via technology, privacy issues, and income inequality. The analysis of previous research; debates on governmental policy; and the latest in technological advancements, will be examined using the viewpoints of Marx, Weber, and Foucault. Marx's viewpoint of technological capitalism will be reviewed with respect to the loss of job opportunities and economic lack in platform technology, while Weber's conceptual view of efficiency will assist in understanding "algorithmic" rules and bureaucratic manner of bureaucratic control in the digital world. Foucault's theory of surveillance will provide a conceptual framework for understanding the growth of digital surveillance, biological identifiers (biometric), and the regulation of data collection-driven regulations.

The paper suggests that while AI could be very useful and help drive forward the development of new technologies, applying AI through unequal distribution may actually reinforce societal divisions based on social class, increase job insecurities and create new forms of technological exclusion among those who do not have access to the technology available to them. This problem is particularly acute in developing countries such as Pakistan. The paper will show how emerging digital platforms, surveillance-based solutions and inadequate regulatory frameworks are creating new patterns of power and inequality. The final conclusion drawn from this paper is that there is a need for ethical and socially responsible governance of AI by creating enhanced protection of personal data, establishing digital rights frameworks, implementing educational programs to promote AI literacy and creating inclusive policy frameworks. The paper also places AI in the context of larger sociological conversations concerning power relations, inequities in social structure, and governing a society. This paper is intended to inform new conversations taking place within the social realm concerning the implications of an increasingly digital society in developing countries such as Pakistan.

Keywords: AI, Algorithmic Governance, Labour Market Changes, Gig Economy, Surveillance, Inequities

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INTRODUCTION

Artificial Intelligence and Social Transformation

Artificial Intelligence (AI) development has been having a dramatic impact on modern-day social, economic and political life. In general, AI describes the ability of machines or computer systems to replicate tasks previously undertaken by humans that involved human intelligence such as learning, reasoning, making decisions, and solving problems. The past decade has seen increasing levels of AI technology introduced across all industries including health care, education, finance, government and security with many claiming it to be a means to create efficiency and innovation in these different industries. However, with the introduction of AI technology, there have also been many important social concerns surrounding the potential of AI; including, but not limited to: displacement of workers, increased surveillance, greater inequality, loss of privacy, and consolidation of technological power.

AI is more than just a technical phenomenon; it is one part of a much larger system (the technology-society system) that is reformulating relationships among citizens, institutions, and power structures. Society and technology are interdependent; therefore, both social, economic, and political forces affect and are affected by technological systems (Feher & Katona, 2021). As a result of this interdependence, AI is transforming not only the labour market and how governments operate but also the way people interact with each other and with their institutions.

AI and Digital Transformation in Pakistan

Pakistan is experiencing the rapid expansion of digital transformation through platform-based economies (services and products delivered through applications like Foodpanda and Careem) and e-governance initiatives, as well as biometric systems and digitally mediated labor markets. As platforms create opportunities for income, they are also creating labor precarity by providing workers with weak protections (due to the structure of gig economy work) and imposing algorithmic control over them.

The growth of biometric identification systems (such as facial recognition) and the use of data surveillance as a means of governing the population further demonstrate the increasing role of AI in the ways that the State and institutions operate in Pakistan. Privacy concerns surround the usage of AI due to an absence of comprehensive data protection legislation; together with minimal oversight from regulatory agencies; and the threat of digital rights violations through the data we collect on individuals. Because of this technological development, it is necessary to conduct a complete assessment of how AI is changing governance structures and the nature of social relations within Pakistan. Therefore, an increased amount of research has been created on the increasing importance of AI throughout the world; however, the majority of research that has been conducted remains within global or western

regions. Since there has not been a substantial amount of research specifically conducted on Pakistan or developing countries, there is a lack of information about how AI intersects with issues associated with economic security of workers, digital inequity, governmental challenges, and access to technology.

Problem Statement and Research Gap

The rapid adoption of AI technologies into existing social and economic structures has created new systems of inequality; new ways of controlling populations; and new ways of altering the way work is performed, and as such these issues should be studied systematically by those in sociology. Most of the existing literature is focused on either the technology itself, economic efficiency when using the technology, or the policy surrounding the use of the technology rather than exploring how AI works to create and enforce existing relationships of power, control, and inequality. A major portion of the literature available on this topic is descriptive and/or highly focused on/determined by technology itself, providing very few, if any, critical perspectives on how AI functionally contributes to the establishment and reinforcement of structural inequalities, institutionalized oppression/control, and the creation and enforcement of new modes of inequality. These observations demonstrate significant gaps in the current body of research and make evident the need for the creation of knowledge regarding the sociological impact of AI in Pakistan and the relationship between AI and digital capitalism; AI and surveillance technologies; AI and labour precarity; AI and the limitations of governance.

Research Purpose and Objectives

This project will critically analyze the sociological implications of Artificial Intelligence within the context of Pakistan. Specifically, this project will examine the impact of AI on labor market dynamics; social inequalities; surveillance; governance; and privacy.

Three classical sociological theorists will guide this work:

1. **Karl Marx** - Analysing labour displacement due to automation and the accumulation of capital through investment in machine technologies;
2. **Max Weber** - Examining the increased level of rationality and bureaucratic control that accompany increased use of algorithmic decision-making as a means of governing society;
3. **Michel Foucault** - Using theories of surveillance, disciplinary practices, and social influence via technology to examine how AI functionally transforms current power structures and reproduces existing patterns of structural inequality within today's institutions.

Sociological Significance of the Study

By connecting traditional sociological theories to recent digital developments

in Pakistan, this article illustrates how these developments relate to sociological theories and current social changes. It is essential to consider that while AI is increasingly seen simply as a new form of technology, it, in fact, represents a new type of social and political institution. This can be seen when looking at AI through the lens of both relative power between individuals and through various forms of inequality that exist among people and how different countries are governed.

Furthermore, there are also many examples of social inequalities in the context of digital transformation in Pakistan due to a lack of regulation, different levels of access to technology, and limited levels of digital literacy within the country. This paper shows that additional collaborative research is needed within many disciplines, including sociology, public policy, and ethics, to determine the implications on technology in light of changes happening because of AI.

AI, Surveillance, and Social Inequality

One major sociological issue related to AI includes the expanding use of surveillance technologies and data-based governance. A lot of AI-based collection systems are now being used in all areas of law enforcement, public services, educational settings, and urban management. When looking at this type of data-collection system from a Foucauldian theory perspective, it supports the idea that there is constant, ongoing observation and regulation of people's actions and behaviour, which can minimize our personal independence, while at the same time increasing control by institutions.

The development of predictive algorithms and databases that track our biometric information, as well as systems used to perform facial recognition, are issues concerning privacy, consent, and bias that algorithms introduce. In particular, issues related to privacy and consent will have an impact in Pakistan, since safeguards for digital rights have not been established in legislation.

In addition to being an issue with respect to privacy and consent, AI can exacerbate economic disparity, as digital capital is now generally concentrated into a few large corporations or technological elite. Although productivity is enhanced via automation and algorithms, and while these systems will result in increased productivity and supply of goods and services or fulfillment of services, they will also replace employees as well as reduce the traditional structures of being employed, which is consistent with Marxian theory around capital accumulation and technological advancement.

Contribution of the Paper

The author's approach to studying artificial intelligence (AI) in Pakistan differs from pure research on AI and technological advances that focus

primarily on the technical/economic dimensions to include a sociological perspective including the social implications of AI in relation to labor, government, surveillance, and inequity within the context of the digital transformation of society.

Through the theoretical model proposed by the author, one can use the ideas of Karl Marx, Max Weber and Michel Foucault combined as a single unified analytic framework to understand how social transformation occurs as a result of the continuing development of artificial intelligence. The author goes on to assert that developments in artificial intelligence will require an ethical governance perspective and will require institutions to be held accountable.

Methodology

The intent of the research described herein is to investigate the effects that Artificial Intelligence (AI) has on society by examining four key areas: labour, surveillance, inequality, and governance/digital transformation. To accomplish this task a qualitative methodological narrative-conceptual review will be employed to analyse data from both empirical and theoretical literature sources to provide an overall sociological viewpoint as opposed to testing a hypothesis through empirical data only.

The literature was collected by means of a systematic search strategy through major academic databases, such as Google Scholar, Scopus-indexed journal repositories, SpringerLink and ScienceDirect. In addition to academic literature it also included Books, relevant policy documents and institutional reports, particularly those dealing with Pakistan's digital transformation, including the National AI Policy of Pakistan, as well as Pakistan's digital governance initiatives and research regarding the gig economy.

Keywords used in the literature search included combinations of the following: 'AI and society', 'AI and labour market', 'algorithmic surveillance', 'digital inequality', 'gig economy in Pakistan', 'platform based labour – Careem and Foodpanda', 'data privacy in Pakistan', and 'algorithmic governance and Foucault/Weber/Marx'. Keywords were used in a variety of combinations in order to ensure the search would result in a broad yet relevant collection of both global and Pakistan specific literature.

The studies used in this literature synthesis were chosen using prioritisation criteria and inclusion criteria that required studies to be scholarly (i.e., peer-reviewed journal articles), to have been authored by a credible institutional author, with a focus on AI's social, economic, and political impacts, and to be published in the last 10-15 years. Studies excluded included those that were not scholarly opinion pieces, were outdated technology reports that had no sociological relevance, or were unrelated to AI or digital transformation.

Also, the literature that was selected was organised into themes based on how the thematic areas align with the analytical framework of the current study. Some of the major themes were basically about labour market transformation; surveillance and privacy; inequality and digital divide; algorithmic governance; ethical considerations of AI. A thematic approach to organising and synthesising findings and outcomes around the emerging digital context in Pakistan provides a foundation for comparing globally both what is happening (the findings) and how it is happening (the emerging digital context) while maintaining the theoretical and contextual validity of the analysis.

LITERATURE REVIEW

Artificial Intelligence and Socio-Technical Transformation

Sociologists are increasingly looking at how Artificial Intelligence (AI) is impacting labour markets, governance, surveillance, inequality, and social interactions (Zhou 2024). They argue that AI should be viewed as a socio-technical system that is created by the relationships between social, economic, and political structures, and therefore AI is much more than simply a new technology (Aikins and Dimitrijevska-Markoski 2026). Current research on AI shows that AI is creating changes in production, decision-making processes, organisation of social systems, and access to opportunity (Broussard 2018).

The literature on AI has a strong divide between optimistic views on efficiency and innovation of AI and pessimistic views on inequality, surveillance and exploitation of labour ((WEF) 2023). Many studies place emphasis on the advances of technology while there are not as many studies that have examined the broader sociological implications of AI in developing countries ((UNDP) 2023). A particularly stark example of this divide can be seen in Pakistan where, despite undergoing technological transformation, there is still high unemployment, a poor system of regulatory institutions and little digital infrastructure (Government of Pakistan 2024).

AI, Labor Transformation, and Platform Economy

A large number of studies investigate the relationship between AI, automation, and changes in the labor force ((OECD) n.d.). Studies by Autor et al., (2013) and Brynjolfsson & McAfee claim that AI enhances productivity and economic efficiency, but at the same time creates labor market polarisation due to the displacement of routine skilled jobs (Restrepo 2013). Some researchers argue that automation presents an opportunity for innovation and economic growth, while others, on the

other hand, argue that AI reinforces capitalist control over labour and increases the level of insecurity among workers (McAfee 2014).

The relevant nature of the above issue increases with the emergence of the platform-based and gig economy. Digital platforms such as Uber, Careem, Foodpanda, Fiverr, and Upwork have created many new flexible jobs, mostly for youth and those without work (Group n.d.). At the same time, scholars argue that these platforms bring about precarious working conditions, reduced job security and variable wages along with using algorithm-based managerial systems to monitor the performance of workers (Porwal, Kumar et al. 2023).

In Pakistan, the growth of Careem, Foodpanda and the culture of freelancing reflect both the potential opportunities as well as the existing inequalities in the AI-driven digital economy. Research conducted in the past shows that gig workers are frequently faced with long working hours, lack of access to labour protection and being dependent on digital rating systems (Ali, Ali et al. 2025). Similarly, while the creation of new employment opportunities through freelancing has improved; the distribution still continues to be inconsistent across the country due to disparities in access to the internet, information technology, education; as well as between urban and rural populations (Irfan, Rasool et al. 2023). Therefore, there is a body of literature suggesting that the transformation of labour through AI is creating and solidifying existing class inequalities instead of eradicating them (Hassan, Anwar et al. 2026).

AI, Surveillance, and Datafication

A second major theme in the literature on AI is its role in the expansion of surveillance and the datafication of our lives. Zuboff describes this phenomenon in her book *The Age of Surveillance Capitalism*, where personal data is increasingly being used as both an economic and a political resource (Zuboff 2019). Research shows that through the use of AI technologies like facial recognition systems, biometric identification, predictive analytics, and automated monitoring systems, both corporations and governments have been able to expand their power to collect and control information about people (Fussey, Davies et al. 2021).

AI technology's presence is growing in the field of public safety with studies showing its effectiveness at providing an increased level of security for citizens as well as allowing for greater efficiency in the management and administration of society (Mishra, Tyagi et al. 2024). However, many critical scholars have raised a variety of concerns related to the use of AI, including the acceleration of bureaucratic rationalization (Weberian theory), loss of privacy and diminished transparency, the potential for misuse of personal information or data, and surveillance as a mechanism of administrative control (Foucauldian

theory), etc (Suat 2025).

In Pakistan, several examples illustrate the increased use of AI in government administration, including biometric identification systems, a national digital identity database system, and the development of the Safe City project (surveillance projects) in major metropolitan areas such as Islamabad and Lahore ((NADRA) , (PSCA)). While AI technologies like biometric verification systems are often promoted on the basis of their contribution to public safety or the promotion of effective governance, scholars have raised serious concerns regarding the lack of robust data protection legislation in the country or the lack of institutional accountability, as well as potential violations of privacy rights (Khan, Farooq et al. 2026). Therefore, it is increasingly obvious in the literature that surveillance is one of the most important societal consequences of governance that is dependent on AI.

AI, Inequality, and Digital Divide

Writers in the literature have repeatedly pointed out that artificial intelligence (AI) drives social and economic inequality to become wider than it is today ((WID.world) 2022). For instance, Piketty points out that in a capitalist economy, the use of technology creates a concentration of wealth among privileged people compared to others (Piketty 2014). Additionally, researchers have found that technologically advanced nations are leading the way in creating innovative tools and technology; while developing countries are unable to innovate and thus are dependent on importing technology from advanced nations, which creates an additional layer of “digital dependency” and “digital exclusion”(Mayer and Lu 2025).

Moreover, AI perpetuates existing inequalities relating to class, education, geography, and access to technology within societies. Scholars suggest that this phenomenon is referred to as the “digital divide”, whereby many marginalized individuals do not have access to the resources that enable them to participate in a digital economy and in technological systems (Rockall, Tavares et al. 2025).

In Pakistan, digital inequality is evident in both urban and rural populations and through comparison of levels of internet access, levels of educational opportunity, and level of technological literacy (Authority 2024, Union 2025). Moreover, women and individuals from economically disadvantaged backgrounds frequently encounter additional obstacles to digital inclusion on account of their gender or socioeconomic status, respectively (Bank 2025). Various government efforts aimed at developing a modern economy and stimulating innovation through the

establishment of a National AI Policy and the use of digital governance systems, but many critics suggest that Pakistan's advantage from the digital transformation will remain disproportionately low across socio-economic lines. The research cited supports the view that AI will reinforce social disaffection unless both inclusivity in policy and adequate digital infrastructure are provided (Jamil 2021).

Synthesis and Research Gap

Research indicates that artificial intelligence (AI) manifests itself as both a technological and social phenomenon, and does so in tandem with its relationship to labor, governance, surveillance, and social disparity ((OECD) 2019–2024). Current literature provides an important lens to examine the possibilities and dangers of AI for developing nations like Pakistan, with some studies emphasizing opportunities typically associated with efficiency, modernization, and economic growth; while others provide a critical analysis of inequalities associated with the nature of work (e.g., precarity), surveillance (e.g., systematized erosion of privacy), exclusion (e.g., digital), and regulation (e.g. enforcement of systemic control by institutions) ((UNDP) 2025).

Despite the number of studies published on AI, particularly within social contexts, there remain many gaps in the current scholarship (Hagerty and Rubinov 2019). For example, while numerous studies have examined specific and individual areas of research related to AI, few have utilized an integrated and sociological lens through which to examine AI at the intersection of labor, surveillance, social disparity, and governance. Furthermore, a number of sociological perspectives that have been used to examine various aspects of human behavior (e.g., Marx's theory of capitalism; Weber's theory of rationality; Foucault's theory of surveillance) have yet to be used to understand the impact of these theories are critical to understanding AI in Pakistan.

As a result, this study seeks to develop an integrated theoretical framework that synthesizes the implications associated with AI and its impact in Pakistan by employing the current literature and policy documentation with existing studies on digital transformations.

THEORETICAL FRAMEWORK

Marx and AI-Driven Labor Transformation in Pakistan

Marxism is a great way to understand the role of technology in the accumulation of wealth by capitalists. This is particularly relevant today as we observe the increasing number of digital platforms collecting revenues from workers and how Artificial Intelligence (AI) is changing work.

Pakistan's economy has grown significantly in recent years due to companies like Careem and Foodpanda, which are both examples of

growing gig economy businesses. The gig economy is also representative of the growing prevalence of flexible yet insecure forms of employment within the workforce.

According to Marxist theory, the increased use of AI-based automation and Digital Capital will further exploit workers by reducing their degree of autonomy and increasing their dependence on the owners of digital capital.

Consequently, as AI continues to evolve, it is likely that job loss will increase due to changes to the organisation of labour that result in an escalating amount of class based inequality based upon the digital economy.

Weber and Algorithmic Governance in Pakistan

Max Weber's theory of rationalization and bureaucracy provides useful insight into what AI-led global systems are all about. AI can be viewed as an extension of rationalization and leads to more data based, consistent and automated decisions.

The implementation of E-governance systems, biometrics for identity verification, and algorithmic administration by public sector agencies in Pakistan, illustrate how digital technologies are shifting society toward rationalized systems of governance. While these systems enable more efficient operations, they also add new rigidities by limiting discretion and increasing the degree of reliance upon opaque algorithmic systems.

Using Weber's iron cage metaphor helps illustrate the likelihood that AI could create highly effective yet sociologically constrained forms of governance.

Foucault and Digital Surveillance in Pakistan

An important critical framework to examine the ways AI-based monitoring systems employ surveillance and regulating power is through Michel Foucault's ideas of surveillance and regulating power. Biometric tracking, facial recognition, and predictive analytics allow for continuous observation through the lens of AI resulting in what Foucault describes as normalized forms of governance.

Surveillance technology employed in urban management and law enforcement in Pakistan provides examples of how digital systems can shape behaviours and strengthen the power of institutions. Because these systems frequently exist without detection, they cause people to regulate their behaviours under the jurisdiction of being under constant observation.

By observing the use of AI, you can see that it not only monitors society, but creates socially disciplined and controlled subjects.

Synthesis of Theoretical Perspectives

Marx, Weber and Foucault's combined work form an extensive analytical

framework on how AI is a multidimensional social force. Marx elucidates how economic restructuring, labor exploitation and private property via capital shape how AI operates. Weber describes the bureaucratic rationalisation and algorithmic governance driven by the development of AI. Foucault's work points toward means of control, particularly through surveillance and disciplinary power.

When employed collectively on the use of AI within the context of digital transformation to Pakistan, their theories reflect that AI represents not only a neutral technological innovation, but rather represents an inherently political and socially embedded system, that operates to simultaneously transform labour, governance and inequality through the use of AI analysis.

ANALYSIS AND FINDINGS:

Utilizing Marx, Weber and Foucault's theoretical frameworks to analyze Artificial Intelligence (AI) as not simply a neutral form of tech innovation, but rather as a part of a broad-based system of social power relations, labour re-organising and transforming the governance of the digital landscape in Pakistan.

The current digital transformation of Pakistan is occurring via platform economies, biometric governance systems and administrative tools that incorporate AI, resulting in AI being fully situated within pre-established systems of existing inequality, state control and economic dependency.

1. Marxian Analysis: AI, Digital Capitalism, and Labor Precarity in Pakistan

From a Marxist viewpoint, AI in Pakistan is seen as a method for gaining wealth through the use of digital technology instead of creating opportunities for more people to earn money. The use of platforms, such as Careem or Foodpanda and online marketplaces allows for flexible forms of labour, however, these types of job opportunities are insecure. Although gig workers are officially classified as independent contractors, the companies that provide these platforms have total power over wages, how workers are seen, as well as how workers will be evaluated and paid for the work completed. This type of employment is an example of Marx's idea of alienation, where workers lack control over the following:

- The process needed to produce their work (they do not have control over how the platform algorithms will dictate their process),
- The product they created (the corporation/entities collecting all data and profits from their actions), and
- Their own financial situation (they do not have any protections for their work).

The current lack of regulations in Pakistan have resulted in digital restructuring of worker exploitation into platform dependency through the use of AI technology, which creates an increase in the number of precarious gig workers instead of converting industrial employment into a growing gig workforce.

2. Weberian Perspective: Rationalization and Algorithmic Governance

Weber's rationalization theory offers insight into how artificial intelligence technologies, such as data, rules and automation, drive increasing levels of bureaucratic efficiency in Pakistan.

We see this through:

- biometric identification systems offered by NADRA (the National Database and Registration Authority)
- safe city monitoring projects
- automated public sector service delivery models.

These types of systems provide greater administrative efficiency but create an additional form of bureaucratic organisation that utilises automated algorithms to produce impersonal and infrequently challenged decision-making processes.

In Pakistan, there are no strong accountability systems to counterbalance the rationalized activities, which leads to what Weber referred to as the "iron cage" of methodical control in which people are governed by technical systems instead of institutions that would allow for citizen participation.

Therefore, artificial intelligence in Pakistan is adding to the bureaucratic power of the Pakistani state while diminishing the ability of citizens to see into the decision processes of government.

3. Foucauldian Perspective: Surveillance, Discipline, and Digital Governance

Surveillance is one of Foucault's theories that will shed light on how Pakistan is implementing AI to expand their monitoring capabilities.

The development of Safe City surveillance networks, biometric databases, and predictive policing systems has allowed the state to conduct an almost constant digital monitoring of its citizens. The use of AI has allowed the state to greatly expand the scope and degree of surveillance beyond what traditional forms permit.

For example, Pakistan's AI-based systems:

- Employ a continuous process of monitoring;
- Are incorporated into everyday infrastructure;

- Operate primarily by collecting data rather than through direct physical force.

Therefore, these systems effectively create a system of control (or discipline) by continuously monitoring citizens and forcing them to conform to societal expectations. Ultimately, people begin to regulate their own behaviour due to the constant awareness of being monitored.

4. AI and Structural Inequality in Pakistan

The existing social inequities are reinforced by the introduction and usage of AI technology in Pakistan rather than alleviating them. Access to digital platforms; AI driven job opportunities; and technology literacy are not equitably distributed among different classes or regions.

Urban and educated populations in Pakistan have been able to use the digital platforms offered through freelancing; while rural and low-income populations are unable to access these same tools.

As a result, digital stratification is created, where the gap between those who have access to a computer and those who do not represent not only a gap based upon economic disparity but also an algorithmic disparity.

From a Marxist perspective, this is indicative of how digital wealth is concentrated in three types of individuals:

- global technology corporations
- individuals who own the platforms
- individuals who control the data

Thus, the structural inequality created by AI reinforces social inequalities through the redistribution of opportunity in terms of access to information technology as opposed to redistributing opportunities through social welfare programs or labor protection systems.

DISCUSSION:

Results of this study suggest a clear disconnect exists between global AI discussions and the socio-technical realities within Pakistan.

Globally, AI has been largely discussed in relation to the following issues:

- a) ethics,
- b) transparency,
- c) governance regulation.

In contrast, the most common experience of AI in Pakistan has been through:

- a) institutional disparity (weak regulations),
- b) informality of labor (dependency on gig work),

c) expansions of surveillance (biometric governance).

In this sense, sociologically speaking:

In Pakistan, AI does not function as an independent technological force, rather AI serves to reinforce pre-existing political, economic and institutional frameworks.

In western societies, discussions on AI are often connected to issues of governance, while the capacity for governance in relation to the expansion of AI presents an uneven development experience in the case of Pakistan.

Therefore, this finding supports the argument being articulated in this study, namely:

- AI is not socially neutral
- AI is structured in terms of existing power relations
- In Pakistan, rather than solving problems of institutional asymmetry, AI contributes to further enhancing these inequalities.

RECOMMENDATIONS:

The following recommendations are designed for key stake holders in Pakistan through a sociological lens:

1. Higher Education Commission (HEC):

- 1) Require all disciplines to include courses on ethics of Artificial Intelligence (AI), digital sociology, as well as algorithmic governance in their curriculum.
- 2) Provide funding for research that explores the social implications of AI technology in Pakistan, with a specific focus on the labor market, surveillance, and income inequality.
- 3) Facilitate the establishment of interdisciplinary research centers that combine the disciplines of sociology, computer science, law, and public policy.

2. Ministry of Information Technology and Telecommunications (MIT):

- 1) Develop a comprehensive national AI governance framework that creates binding legal obligations and enforceable ethical standards for the ethical development and use of AI technology.
- 2) Establish an independent algorithmic accountability authority (AAA) to perform accountability audits on the use of AI systems in both public and private sectors of the economy.
- 3) Ensure that there are sufficient transparency requirements in place for the use of AI systems in public sector and private sector job creation, as well as for the use of AI systems in surveillance, hiring, and public sector services.

3. Universities:

- 1) Create and implement interdisciplinary degree programs that link sociology, data science, law, and AI governance.
- 2) Develop research labs that focus on AI issues unique to Pakistan, including gig economy exploitation, biometric governance, as well as digital access and inequality.
- 3) Increase the number of empirical studies/trials using Ontario examples of platforms such as: Careem, Foodpanda, as well as freelance economy systems.

4. Ministry of Labor:

- 1) Expand formal workers' rights/benefits to include gig and platform workers.
- 2) Regulate the algorithmic management systems used to manage gig/platform workers (rating systems, deactivation of gig/platform workers, pricing models).
- 3) Introduce social security/insurance programs for gig/platform workers engaging in digital work.

5. Policymakers (Federal & Provincial Governments)

- 1) Enact comprehensive data protection and digital rights legislation.
- 2) Require Algorithmic Impact Assessments (AIA) before deployment of AI systems in governance.
- 3) Ensure judicial and parliamentary oversight of surveillance technologies.

6. Cross-Cutting National Priorities

1. AI Ethics: Establish and enforce ethical audits on high-risk AI applications
2. Digital Rights: Make personal and private data a constitutionally protected right
3. Worker Protection: Designate gig workers as a legally protected class of workers
4. Interdisciplinary Research: Provide funding for AI and society to collaborate on research projects
5. Governance Frameworks: Create a framework for the transparent and accountable oversight of AI

CONCLUSION:

This research project was conducted to explore Artificial Intelligence (AI) as a social phenomenon that has resulted from the following: digital transformation, the rise of platform-based work, and growing levels of

citizen surveillance, particularly in Pakistan. The research method incorporates a social perspective on AI and considers how it is transforming existing social relations, power structures, and patterns of inequality in society.

Overall, three major interrelated processes by which AI operates in Pakistan were identified through the project results. These processes are 1) the restructuring of work through gig and platform economies; 2) the increase of algorithmic governance through biometric identification and increased levels of surveillance; and 3) the reproduction of inequalities based on limited access to both digital infrastructure and digital employment opportunities. AI is not a neutral technology; rather it supports existing power structures at both macro (societally) and micro (individually) levels in Pakistan where there is no or little regulatory/legal framework governing either labour protections or data governance. From a theoretical perspective, applying Marx, Weber, and Foucault to the phenomenon of AI illustrates the need to conceptualize AI as a convergence of the forces of digital capitalism, rationalized bureaucracy, and disciplinary surveillance. When combined with the fragility of Pakistani institutions, there is a "nascent" situation where technological advances occur more rapidly than the ethical, legal, and democratic governance structures necessary to regulate their use.

Future Research Directions

Further research using empirical methods should be done on how the gig workforce in Pakistan is experiencing gig jobs through AI platforms (e.g., Uber, Lift, etc.), how well the developing governance systems for digital applications and biometrics are working, the level and specificity of surveillance by various actors over workers, how artificial intelligence is governed institutionally and are the institutions ready to establish regulations/accountability for artificial intelligence.

This research will provide additional insight into how global artificial-intelligence-driven systems and technologies interact with and change social life within poor and developing countries.

Final Reflection

AI in Pakistan should be regarded not just as a technological advancement but rather a transformative social entity that will reorganise the manner in which we work, govern ourselves and recreate inequality as such there will be a fundamental issue with AI; however, rather than looking solely at AI it is imperative that we look at the whole of government to bring about an inclusive and accountable and rights based governance structure to address these challenges so that AI can be managed socially and therefore social justice can be accomplished through digital transformation.

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