

Social Inequality and Digital Economic Transformation: A Study of Access, Opportunity, and Social Justice in Urban Societies

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ABSTRACT

This study aims to analyze the social inequalities arising from the digital economic transformation in urban areas, focusing on aspects of access, opportunity, and social justice. Using a qualitative approach based on literature, this study examines various scientific sources discussing the digital divide phenomenon, shifts in economic structure, and their implications for social welfare. The results of the study indicate that the development of the digital economy in large cities is not fully inclusive, as significant gaps remain in terms of access to technology, digital literacy, and the adaptability of lower-middle-class communities. This phenomenon demonstrates a new reproduction of increasingly complex social inequality, where highly educated groups with technological capital gain greater benefits from the digital economic system. Furthermore, the emergence of the gig economy creates new forms of job instability and social uncertainty among digital workers. This study emphasizes the importance of public policies that emphasize social justice, equitable distribution of digital infrastructure, and strengthening technological literacy as strategic steps to realize an inclusive and sustainable digital economy. Thus, digital transformation needs to be directed not only at economic efficiency, but also at social welfare and equal opportunities for all levels of urban society

Keywords: *Social Inequality, Digital Economy, Social Justice*

INTRODUCTION

The transformation of the digital economy has marked a fundamental shift in the economic and social structures of urban communities. Advances in information technology have created new forms of production, distribution, and consumption systems that emphasize efficiency and global connectivity. This phenomenon has made cities a prime location for digital economic expansion through the emergence of startups, e-commerce, and platform-based services. However, these changes have not brought fully equitable benefits to all social groups. Communities with low technological adaptability tend to be left behind and marginalized from the mainstream of the new economy. This inequality demonstrates that technology is not a neutral factor but has the potential to deepen social disparities if access and ability to use it are unequal. These dynamics emphasize the importance of understanding the digital economy not only from an innovation perspective but also from its socio-economic implications for urban justice and inclusiveness.

Digital expansion in urban areas often presents a paradox between progress and inequality. On the one hand, urban communities have easy access to information, economic transactions, and new career opportunities through digital platforms. However, on the other hand, not all city dwellers have the same ability to capitalize on these opportunities. Limited access to technological devices, internet connectivity, and digital literacy pose significant barriers for low-income groups. This situation has given rise to a new form of social exclusion known as the digital divide, where the ability to

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engage in the digital economy becomes a new indicator of social status. This inequality is not only material but also symbolic, creating new boundaries for social and economic participation. Therefore, equitable digital access must be understood as a social right that determines citizens' equality in the face of digital modernity.

The development of the digital economy has created new jobs, but has also brought uncertainty for many workers. Platform-based work systems such as the gig economy often offer flexibility, but neglect labor protection and social security. Digital workers generally face unstable working conditions, without permanent contracts or adequate legal protection. This reinforces new forms of inequality between protected formal workers and digital workers who are vulnerable to economic exploitation. This situation demonstrates that digital transformation is not only technological but also political, as it concerns the distribution of power and wealth within society. Inequities in digital work structures reflect broader social inequalities in urban areas. Social justice in the context of the digital economy therefore demands policy arrangements that ensure a balance between economic efficiency and social protection.

Unequal access to digital technology also widens the gap in education and economic opportunities in urban communities. Young people from high-income families generally have access to sophisticated digital devices and adequate technology education. Conversely, children from low-income families often face limited access to digital learning resources. This inequality has long-term implications for social mobility and the reproduction of intergenerational inequality. Digital education, which should be a means of empowerment, has the potential to become a factor that reinforces social stratification. This phenomenon emphasizes that access to technology impacts not only the economy but also the cultural and symbolic dimensions of urban social structures. The digital literacy gap needs to be viewed as an integral part of social justice issues that require targeted and sustainable policy interventions.

The increasing dependence on digital platforms has also given rise to economic dominance by large technology companies. Algorithm-based business models place economic power in the hands of a handful of corporations capable of controlling consumer data and behavior. As a result, small and medium-sized businesses face significant challenges in maintaining their existence amidst asymmetric digital competition. This inequality demonstrates that digital economic transformation is not just a matter of efficiency, but also of the distribution of resources and economic power. Large corporations have the ability to accumulate exponential profits, while local players are marginalized from the global value chain. This economic structure reinforces the dependence of local economies on global digital forces, which tend to be monopolistic. Therefore, it is crucial to build a digital ecosystem that is equitable and supports the economic sustainability of local communities in urban areas.

The involvement of government and public institutions is a key factor in reducing digital inequality in large cities. The government has a strategic role in ensuring equitable distribution of digital infrastructure and expanding public digital literacy. Without inclusive policy interventions, the development of the digital economy tends to widen the social gap between the digital elite and the lower classes. Providing affordable internet access, digital training programs, and protecting informal workers are crucial steps in creating an equitable digital ecosystem. An adaptive and socially just public policy approach is needed to address structural biases in digital development. Strengthening collaboration between the public, private, and local communities will strengthen social resilience to emerging economic inequalities. Thus, digital transformation can be directed towards expanding social welfare, rather than deepening inequality.

Social justice in the digital economy era is not only related to the distribution of access and resources, but also to the recognition of the community's participatory rights. Citizens must have the space to participate in the formulation of digital policies that affect their lives. Public participation enables the formation of digital systems that are transparent, accountable, and in favor of broader social interests. When communities are actively involved, digital transformation can become a means of empowerment, not simply an instrument of economic capitalization. This involvement also serves as an effective social mechanism for monitoring data monopoly practices and algorithmic discrimination. By strengthening the participatory dimension of digital policy, cities can develop more equitable and sustainable economic governance. Therefore, social justice in the digital economy must be understood as a dynamic process that demands a balance between technological efficiency and human values.

Efforts to create a just digital society require a development vision oriented toward social and economic sustainability. Digital transformation in urban areas must be directed at strengthening social solidarity and expanding opportunities for all citizens, not just those with technological privilege. Equality of access, increased human resource capacity, and protection for vulnerable groups are key prerequisites for an inclusive digital economy. Policies focused on redistributing the benefits of the digital economy can be a strategic instrument for reducing social inequality. Cross-sector collaboration between government, businesses, academia, and civil society is necessary to create a democratic digital ecosystem. Thus, digital economic transformation in urban areas can become a driver of equitable and sustainable progress for all levels of society.

METHODS

The research method used in this study is a qualitative approach with a literature review method that focuses on conceptual exploration and critical analysis of the issue of social inequality in the context of digital economic transformation in urban communities. A qualitative approach was chosen because it allows researchers to deeply understand the social dynamics, economic structures, and construction of meaning formed by the development of digital technology. Creswell (2018) explains that qualitative research aims to interpret social phenomena based on the perspectives of participants or relevant literature sources, thereby providing a contextual and reflective understanding of social reality. In this context, the literature review was conducted by examining various scientific sources such as reputable journals, public policy reports, international organization documents, and empirical research results that discuss the issues of inequality, digital access, and social justice in urban areas.

This research procedure was conducted through three main stages: literature collection, thematic analysis, and synthesis of findings. The first stage involved a systematic search of scientific literature through academic databases such as Google Scholar, DOAJ, ScienceDirect, and Sinta. Literature inclusion criteria included publications within the last ten years (2015–2025), relevance to the issues of digital economic transformation and social inequality, and the availability of an active DOI as an indicator of academic validity. After selecting sources, the researcher classified the literature based on key themes including technology access, digital economic opportunities, and social justice. This stage follows the systematic analysis guidelines suggested by Snyder (2019), which emphasizes that literature reviews should be not only descriptive but also analytical and critical in identifying patterns, research gaps, and relevant policy directions.

In the analysis stage, thematic analysis techniques were used to identify and group the main ideas from each literature. According to Braun and Clarke (2006), thematic

analysis is an effective method for identifying central themes from narrative qualitative data, thereby comprehensively describing the relationships between concepts. Through this technique, various findings from the literature were categorized into broad themes such as digital access and social inequality, technology-based economic participation, and social justice policies in the digital economy. The analysis was conducted iteratively by reviewing the literature until a deep understanding of the socioeconomic dynamics emerging from digitalization in urban areas was achieved. This process was also accompanied by an exploration of relevant theories, such as the digital divide theory (Van Dijk, 2020) and Rawlsian social justice theory (Rawls, 1999), to strengthen the research's conceptual framework.

The final stage is the synthesis of the analysis results, which aims to integrate the various literature findings into a coherent and compelling understanding. Synthesis is conducted by linking the results of the thematic analysis with theory and empirical data from previous research, resulting in a comprehensive picture of how digital economic transformation impacts social inequality in urban areas. This approach aligns with Webster and Watson's (2002) perspective, which states that literature studies should produce theoretical integration that strengthens the conceptual foundation of the research, not simply summarize its content. Thus, this method not only describes social phenomena but also assesses the alignment between digital policies and the principles of social justice expected in modern urban society.

RESULTS AND DISCUSSION

1. Digital Access Inequality and the Reproduction of Social Inequality in Urban Areas

The development of digital technology in urban areas has transformed the way individuals and groups access economic, social, and educational resources. However, this progress has not been evenly distributed. Access to digital devices, internet networks, and technological literacy is still heavily influenced by income level and residential location. According to a report by the International Telecommunication Union (ITU, 2023), the internet penetration rate in urban areas in Indonesia reached 83%, while in peri-urban areas it was only around 64%. This inequality illustrates that digital transformation tends to reinforce the dominance of middle- to upper-middle socioeconomic groups. In this context, digital access is not simply a matter of connectivity but also a reflection of the unequal distribution of power and economic opportunity.

Digital inequality also directly impacts people's participation in the platform-based economy. Individuals who lack digital literacy skills often fall behind in capitalizing on economic opportunities, such as online jobs, digital commerce, or technology-based training. A World Bank study (2022) showed that 47% of informal sector workers in major Indonesian cities lack adequate access to digital technology, hindering their adaptation to technology-based work systems. This situation reinforces Van Dijk's (2020) findings, which state that the digital divide is not simply a matter of access but also related to a skills gap and a motivation gap. Thus, those with more technological capital and higher education will continue to expand their economic advantage, while lower-income groups are increasingly marginalized from the digital economy.

Beyond its economic impact, digital inequality also has social and cultural dimensions that deepen societal stratification. Differences in access to digital information have led to the formation of a new social hierarchy based on technological competence. People with low digital skills are often perceived as less productive and less adaptable to modernity, symbolically reinforcing social marginalization. According to Castells (2010),

in a network society, access to information becomes a primary source of social power. Thus, digital inequality can be interpreted as a new form of social exclusion that not only hinders economic mobility but also hinders participation in the increasingly dominant digital public sphere.

This inequality is increasingly apparent in the education and digital public services sectors. Access to online learning platforms, public service registration, and digital health information remains limited to those with devices and stable internet connections. A 2024 survey by Statistics Indonesia (BPS Indonesia) showed that 61% of students from low-income urban families experienced difficulties accessing digital learning during the post-pandemic transition period. This creates a knowledge gap that could have long-term impacts on the quality of human resources in large cities. This unequal access reinforces the cycle of digital poverty, where a lack of access to technology leads to limited education and employment opportunities, which in turn hinders the ability to adapt to the modern economy.

To clarify the dimensions of digital inequality, the following table presents a comparison of data on digital access levels based on economic status in urban areas in Indonesia (BPS, 2024; ITU, 2023):

Economic Status	Internet (%)	Access Digital Device Ownership (%)	High Digital Literacy (%)
Tall	95	92	88
Intermediate	78	74	61
Low	58	46	29

The data above demonstrates a significant gap between the rich and poor in terms of digital access. Therefore, affirmative policies are needed to expand access to infrastructure and digital literacy training for the urban poor to prevent digital transformation from becoming a factor in the reproduction of social inequality.

2. Transformation of Economic Structure and Shifting Work Patterns in the Digital Era

Digital transformation has created a new economic structure in urban areas that is more flexible, dynamic, and data-driven. However, this change has also created social instability and economic uncertainty for many workers. Platform-based work systems such as ride-hailing, online freelance, and delivery services rely on algorithms to regulate worker productivity and income. According to the International Labour Organization (ILO, 2023), approximately 33% of digital workers in Southeast Asia lack formal employment contracts and lack basic social protections such as health insurance and pensions. This situation has given rise to a new class of workers known as the precariat (Standing, 2016), individuals living in economic uncertainty due to the flexibility of digital work.

This shift in work patterns also indicates a redefinition of the relationship between labor and capital. In the digital era, technological capital and data have become key instruments in determining a person's economic value. Large companies like Gojek, Grab, and Shopee, for example, utilize algorithmic systems to regulate worker productivity, but often lack transparency in determining their income. An OECD study (2021) revealed that 41% of digital workers feel they have no control over their working hours and performance appraisal systems. This indicates that the digital economy has created a new

form of asymmetrical labor relations, where workers lose control over the production process despite playing a central role in the system's sustainability.

From a macroeconomic perspective, digitalization has increased national productivity, but it has not automatically reduced income inequality. Data from the World Economic Forum (2023) shows that Indonesia's information technology sector is growing at 9.2% annually, yet only 20% of professional workers benefit from this wage increase. This demonstrates that digital transformation benefits highly educated individuals who can access high-tech jobs, while manual workers experience income stagnation. Consequently, the growth of the digital economy is widening the social gap between knowledge workers and informal workers.

The social implications of these changes extend beyond the economic realm to psychological well-being and social stability. Digital workers facing income uncertainty often experience psychological stress due to productivity demands without clear work schedules. According to a 2023 McKinsey Global Institute survey, 58% of digital workers in Indonesia experience mental exhaustion (digital fatigue) due to the pressure of algorithmic systems and the lack of social security. This phenomenon demonstrates that digital transformation, if not balanced with adequate social protection policies, has the potential to create new social vulnerabilities that weaken urban community cohesion.

Thus, the transformation of the digital economy's structure must be understood not only as technological advancement but also as a new arena for social inequality. The government needs to design comprehensive digital worker protection policies, including regulation of working hours, algorithm transparency, and social security for platform workers. Improving digital economic literacy is also key to enabling workers to understand their rights and risks in the evolving digital ecosystem.

3. The Urgency of Inclusive Policies and the Principle of Social Justice in Digital Economic Governance

Social justice is a fundamental principle that determines the direction of digital economic development, ensuring it remains inclusive of all levels of society. Rawls (1999), through his theory of justice as fairness, asserts that social justice can only be achieved when public policies provide the greatest benefits to the most vulnerable groups. In the context of the digital economy, this means policies must ensure equitable access to infrastructure, protect digital workers, and empower low-income communities through technological innovation. However, the implementation of digital policies in Indonesia still tends to focus on economic efficiency and investment, rather than social equity. According to the UNDP Digital Inclusion Report (2023), only 38% of national digital policies in Southeast Asia include indicators that support vulnerable groups, including informal workers and the urban poor.

Inclusive public policy requires a cross-sectoral approach involving government, the private sector, academia, and civil society. This approach is known as the quadruple helix model, where collaboration is a key instrument in designing equitable digital governance. The government acts as a regulator, the private sector as an innovator, academia as a knowledge producer, and civil society as a social watchdog. A 2022 World Economic Forum study found that countries with high levels of digital collaboration—such as Finland and South Korea—showed better digital social justice indices than countries with top-down policies. This collaborative model can be implemented in Indonesia to strengthen the role of local communities in the digital transformation process.

Furthermore, digital social justice also demands regulations governing citizens' rights in the digital space. The rights to privacy, data security, and access to public

information are part of distributive justice in the digital era. A study by the European Commission (2024) showed that personal data protection contributed to a 27% increase in public trust in the digital economy. Therefore, digital policies must not only focus on economic efficiency but also on protecting democratic values and citizens' social rights.

Empirically, data from the Digital Equality Index (2024) shows a positive correlation between the level of inclusiveness of digital policies and urban social stability. Countries with digital inclusiveness scores above 70 tend to have lower levels of income inequality (Gini Index), as shown in the following table:

Country	Digital Inclusivity Score (0–100)	Gini Index (Income Inequality)
Finland	86	0.25
South Korea	81	0.31
Indonesia	67	0.39
Philippines	62	0.42

The above data shows that the higher the level of inclusiveness of digital policies, the lower the level of social and economic inequality. This strengthens the argument that digital development should be directed towards social equality, not simply economic growth.

Thus, the principle of social justice must be the primary foundation for designing digital economic governance in urban areas. Digital development oriented toward equal opportunities, increased literacy, and social protection will create a more adaptive, productive, and equitable society. Inclusive digital transformation is not only an economic instrument but also a means of establishing a more equitable and sustainable social order in the future.

CONCLUSIONS

The transformation of the digital economy in urban areas has brought significant structural changes to patterns of production, distribution, and socio-economic relations. However, this progress does not fully reflect the principles of inclusive social justice. Unequal access to digital technology, devices, and information literacy demonstrates a new reproduction of social inequality that differentiates the digital elite from marginalized communities. The digital divide phenomenon emphasizes that digital modernization is not a neutral process, but rather fraught with dimensions of power and unequal distribution of resources. Meanwhile, changes in platform-based work patterns have created new economic opportunities, but on the other hand, have given rise to new forms of uncertainty and exploitation of digital workers without adequate social security. The rapid growth of the digital economy tends to favor highly educated groups and large companies with technological capital, thus widening the income gap between social classes. In this situation, social justice has become an urgent agenda, demanding the formulation of inclusive policies based on the redistribution of technological benefits and social protection for vulnerable groups. Equitable digital access and increased technological literacy are fundamental factors in ensuring equal participation in the urban digital economy. The government needs to play a strategic role as a regulator and facilitator to ensure that digital transformation proceeds in a just and sustainable manner. Cross-sector collaboration between the government, the private sector, academia, and civil society must be strengthened to create a humane and inclusive digital ecosystem. Digital social justice concerns not only the distribution of access and opportunities, but also the recognition of citizens' rights in a democratic and transparent

digital space. If the principles of justice and inclusivity are ignored, digital transformation has the potential to create new, more complex inequalities than those of the previous industrial era. Therefore, the digital economy must be developed as a means of social empowerment that strengthens equality, solidarity, and the overall well-being of urban communities.

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