Innovative Digital-Based Social Policy Models to Combat Urban Poverty

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Abstract

Urban poverty continues to show new complexities along with the development of digital technology and rapid social change. Inequality in access to technology has deepened social disparities and marginalized vulnerable groups in the urban ecosystem. On the other hand, conventional social policies are considered not adaptive enough to respond to the dynamics of the needs of the urban poor. This study aims to formulate an innovative digital-based social policy model to combat urban poverty more effectively. This study uses a qualitative approach with data collection through a literature review of various relevant literature. Data are analyzed in depth to find patterns and relationships between elements that contribute to the formulation of digital social policies. The results of the study show that the use of digital technology has great potential in accelerating data collection, increasing public participation, and encouraging policy transparency. Social policy innovations that integrate technology, data, and cross-sector collaboration have proven to be able to respond to structural challenges in the urban policy system. Therefore, the formulated policy model not only offers a more adaptive approach but also becomes a strategic foundation for realizing social justice amidst digital transformation.

Keywords: *Social Policy, Digital Innovation, Urban Poverty, Social Inclusion, Digital Technology.*

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A. INTRODUCTION

Urban poverty has become one of the social challenges that continues to grow along with rapid urbanization and urban population growth. Inequality in the distribution of resources, limited access to public services, and increasing costs of living in urban areas have caused low-income groups to be increasingly marginalized from the flow of development (Kisiała & Rącka, 2021). Amid these conditions, various programs and policies that have been launched by the government to overcome poverty have often not been able to effectively reach the specific needs of the urban poor who live in very complex social, economic, and cultural dynamics. Urban lifestyles that are full of dependence on information and communication technology require a new approach that is more adaptive to the digital context and behavior of modern society. However, most social policies still rely on conventional methods that are not fully responsive to changes in interaction patterns and the need for fast, transparent, and data-based services (Srivastava et al., 2024).

In addition, the rapid digital transformation in various sectors is not always accompanied by comprehensive integration into social policy planning. When various public services have begun to switch to digital systems, most of the urban poor experience gaps in access to information and limitations in utilizing existing digital facilities (Nosova et al., 2021). This creates a new gap in terms of receiving benefits from social policies that are designed without considering the real reality of the digital divide on the ground. The government, in this case, often faces difficulties in designing interventions that are participatory, accurate, and able to reach marginalized groups inclusively. This situation is exacerbated by the lack of cross-sector coordination and weak data integration between institutions, which ultimately hampers the effectiveness of the implementation of poverty alleviation programs (Naudé & Vinuesa, 2021).

Big cities in Indonesia are facing increasing social pressures due to population explosion, limited land, and uneven basic infrastructure issues. In this context, pressure on vulnerable groups of people increases significantly. As basic services such as education, health, housing, and employment become increasingly difficult for the poor to access, social exclusion becomes more entrenched in the urban fabric (Gaborit, 2022). This condition shows the urgency to formulate a new approach to social policy that not only reactively responds to poverty, but is also able to build a proactive, integrated, and innovative system in mapping and responding to the needs of the urban poor promptly. This marks the need to update the policy framework by considering the development of digital technology as the main medium in data management, aid distribution, and social impact evaluation (Millard & Fucci, 2023).

Furthermore, the experience of the COVID-19 pandemic has revealed structural weaknesses in conventional social service systems that are not ready to deal with the needs of the community in emergencies in real time. Many urban poor people are not registered in the official system, so they do not get quick access to aid. This situation shows the importance of a digital system that can present accurate, dynamic data that can be used to design evidence-based interventions (Hassankhani et al., 2021). In the post-pandemic context, important lessons about the importance of integrated digital systems should be the basis for building a social policy model that can address the challenges of urban poverty in a more modern and systematic way. Thus, the urge to design a digital-based social policy model is getting stronger, especially as the private sector and civil society initiatives are also starting to show significant potential in developing digital solutions that support social inclusion (Sibilla & Gorgoni, 2023).

However, there is still a large gap between the potential of digital technology and the government's ability to integrate it into an inclusive and sustainable social policy framework. Many digital solutions are developed partially and unsustainably due to weak institutional support, minimal regulations that support innovation, and the absence of a comprehensive evaluation framework (Colding et al., 2024). When social policies fail to adapt to technological developments, more and more urban poor people will be left behind by the digital transformation. The potential of technology

to detect specific needs, personalize services, and monitor and evaluate program results in real time can be a major force in forming sharper, more adaptive, and more impactful social interventions (Tim et al., 2021).

Demographic changes and the character of urban communities that are increasingly digitally connected also demand a shift in the way governments interact with their citizens. When digital public spaces become new arenas for information exchange and social expression, participatory approaches in the formulation and implementation of social policies must adapt to these dynamics (Allam et al., 2022). Citizen participation in the digital world can be a source of data and inspiration for the development of more responsive and collaborative social policies. In this context, social policy innovations that not only utilize technology instrumentally, but also understand patterns of social interaction in digital space, become very relevant to answer the complex problem of urban poverty. Therefore, there needs to be in-depth research on how to design a digital-based social policy model that is innovative, adaptive, and capable of becoming a real solution in efforts to combat urban poverty that is increasingly multidimensional and dynamic.

B. LITERATURE REVIEW

1. Social Policy

Policy is a collection of decisions taken by an actor or by a political group to choose goals and ways to achieve those goals. According to David Easton, policy is a decision taken by the government or the leader of a group/organization as the power to allocate values for society or its members as a whole. Meanwhile, according to Lasswell and Kaplan, policy is a tool to achieve goals, where policy is a projected program regarding goals, values , and practices (Basseches et al., 2022).

Henz Eulau and Kenneth Previt formulate policy as a fixed decision, marked by continuous and repeated behavior in those who make policies and those who implement the policies that have been made. According to Muhadjir, policy is an effort to solve social problems for the benefit of society based on justice and social welfare (Singh et al., 2022). And in policy, at least four important things must be met, namely; (1) the standard of living of society increases, (2) there is justice: By the law, social justice, and opportunities for individual achievement and creativity, (3) opportunities for active community participation are given (in discussing problems, planning, decisions and implementation), and (4) sustainable development is guaranteed (Jaelani et al., 2023).

Concerning social policy, the word social can be interpreted either generically or broadly, or specifically. In a generic sense, the word social refers to a general understanding of the fields or sectors of development that concern the human aspect in the context of society or collectivity. The term social in this sense includes, among others, the fields of education, health, politics, law, culture, or agriculture (Khogali & Mekid, 2023). In a specific or narrow sense, the word social concerns the social welfare sector as a field or part of social development or people's welfare that aims to improve the quality of human life, especially those categorized as disadvantaged groups and

vulnerable groups. The word social here concerns programs and or social services to address social problems, such as poverty, neglect, physical and psychological dysfunction, social and immoral behavior, and juvenile delinquency (He et al., 2024).

The term social policy is defined as a policy that concerns social aspects in a specific sense, namely those concerning the field of social welfare. This understanding of social policy is in line with the understanding of social planning as stated by Conyers. According to Conyers, social planning is the planning of legislation on social welfare services that first appeared in Western Europe and North America. So even though the concept of social planning is widely integrated, in Western society the assumption has developed that social planning is always closely related to social welfare planning (Moreira & Hick, 2021).

Some experts, such as Marshall, Rein, Huttman, Magill, Spicker, and Hill, also define social policy as social welfare policy. Social policy is part of public policy. Public policy includes all policies originating from the government, such as economic policy, transportation, communication, defense and security (military), and other public facilities (clean water, electricity). Social policy is a type of public policy that is directed to achieve social goals (Sydorchuk et al., 2024).

2. Poverty

One of the urban problems is poverty. Poverty continues to be a major problem and a problem that has existed throughout Indonesia's history as a country. In a country that is mismanaged or a leader who does not have or does not carry out his duties properly cannot manage his country properly, there is no bigger problem than the problem of poverty. Poverty has made millions of children unable to continue their education, let alone get a quality education, because they are limited by expensive school fees and their lives are full of deprivation, so that parents cannot send their children to school (Gibson et al., 2023). Those who have difficulty in financing health, lack of savings for the future and have no investment, little access to public services, little provision of employment, lack of social security and lack of protection for families, strengthening the flow of urbanization to urban areas, and even worse, poverty has caused millions of people to be unable to meet their limited food, clothing and shelter needs (Yuda & Kühner, 2023).

Poverty is a state of inability and lack of everything in meeting basic needs such as food, clothing, shelter, education, and health insurance. Poverty is something caused by the scarcity of basic needs fulfillment tools, or having difficulty in accessing education and employment. Poverty is a familiar and complex problem, and all countries experience poverty, therefore, poverty is a global problem. Some people understand the term poor comparatively and subjectively, while others see it from an evaluative and moral perspective, and others understand it from an established scientific perspective, and others (Amofah & Agyare, 2022).

Poverty can be understood in various ways. The main understanding of poverty includes, among others:

a. There is a picture of material deficiencies, which include daily food needs, clothing, housing, and health services. Poverty in this case is defined as a situation that experiences a scarcity of basic services and goods to fulfill basic needs (Kemei et al., 2023).
b. There is a picture of social needs, including someone who experiences social exclusion, dependency, and the inability to participate in society. In this case, this includes information and education. Social exclusion is usually distinguished from poverty because it includes moral and political issues, and this cannot be limited to the economic sector (Leal Filho et al., 2021).
c. There is a picture of a lack of income and inadequate wealth. The meaning of the word "adequate" has different meanings across economic and political sectors around the world (Ediagbonya & Tioluwani, 2023).

C. METHOD

This study uses a qualitative approach to examine in depth the dynamics of digital-based social policies in the context of poverty alleviation in urban areas. This approach was chosen because it allows for a more detailed exploration of complex social phenomena, especially in terms of the interaction between technology, public policy, and the realities of life of the urban poor. The focus of the research is directed at how social policies can be designed innovatively by utilizing digital technology to address structural and social challenges in a dynamic urban environment. In the process, this study will explore the relationships formed between key actors such as the government, local communities, and the private sector in building a more inclusive, adaptive, and data-driven policy system. Data collection was carried out through a literature review of various relevant secondary sources, including previous research results and academic publications related to the research theme. After the data has been successfully collected, the next step is a qualitative analysis process, emphasizing the search for patterns, tendencies, and relationships between social variables that appear in the literature. The results of this data processing process will be the basis for formulating an innovative and contextual social policy model according to the needs of the urban poor in the era of digital transformation (Pahleviannur et al., 2022).

D. RESULT AND DISCUSSION

1. Dynamics of Urban Poverty in the Context of Digital Social Transformation

The rapid development of technology in the last two decades has brought about major changes in the social and economic structure of urban communities, including the dynamics of poverty that occur within them. Big cities are no longer just centers of economic and governmental activity, but have also become increasingly complex digital interaction spaces. In this context, poverty can no longer be understood merely as economic inability, but also involves aspects of alienation from digital systems that are now an important part of everyday life. The massive development of technology in urban areas, along with the high flow of internal migration from rural areas to big

cities, has created changes in the characteristics of poverty that are increasingly dynamic and multidimensional. Groups of people who move to cities in the hope of getting a better life are often trapped in new layers of poverty due to limited adaptation to digital realities, limited social networks, and limited access to formal jobs that match their skills.

In these conditions, there is a transformation of forms of social vulnerability that are not only rooted in economic inequality, but also in inequality of access to technology. Amid increasingly digitally connected cities, many urban poor people are left behind because they do not have digital devices, are not exposed to technological literacy, or do not have supporting infrastructure such as a stable internet network. This creates a significant digital divide between those who can use technology to improve their quality of life and those who are increasingly marginalized due to their inability to access digitalized public services. This gap also reinforces patterns of social exclusion, where the urban poor lose the opportunity to participate in various programs, economic activities, and government services, which are now mostly based on applications and online systems.

On the other hand, changes in urban consumption and mobility patterns influenced by digitalization have also had an impact on the lives of the poor. Urban consumption patterns have shifted from conventional needs to needs that depend on digital systems, such as non-cash transactions, application-based services, and online access to information. For poor groups who do not have supporting devices or an understanding of these systems, this change creates additional obstacles in meeting their basic needs. Even access to informal jobs that used to rely on physical mobility is now shifting, because many service providers rely on digital platforms to acquire consumers. The urban poor who do not have access to digital devices also have difficulty reaching the market, and ultimately lose economic opportunities that were previously available. Likewise, in access to basic services such as education and health, which are now largely transforming towards digital services, the urban poor are increasingly left behind due to limited knowledge, digital skills, and the infrastructure they have.

Digital exclusion is a major challenge in the context of social policy because it indirectly reinforces the marginalization of vulnerable groups. When the urban poor are not connected to the digital system that is the basis for planning and distributing assistance programs, they are often not recorded, not informed, and ultimately do not receive the social assistance they are entitled to. In addition, this exclusion also has an impact on psychological and social aspects, because it increases feelings of alienation, lowers self-confidence, and creates the perception that they are not included in the city development process. In the long term, this condition can worsen social fragmentation and widen the gap between digitally connected groups and those left behind in the transformation. The urban poor who experience digital exclusion become increasingly weak in the city's social and economic system because they do not have access to information, opportunities, and social networks that are increasingly dependent on technology.

Thus, the dynamics of poverty in urban areas cannot be separated from the context of the ongoing digital social transformation. Digital inequality not only widens the social gap but also undermines the effectiveness of various social interventions designed to tackle poverty. Therefore, policymakers need to understand this complexity as an integral part of formulating more inclusive and adaptive social strategies. Urban poverty no longer only demands economic assistance, but also interventions that can bridge the digital divide and build the capacity of poor communities to participate in the digital era that increasingly dominates various aspects of urban life. Without an appropriate understanding and response to these changes, the social policies implemented risk being irrelevant and strengthening the cycle of poverty that continues to reproduce itself amidst the unstoppable flow of digital transformation.

2. Structural Challenges in Social Policy Formulation for Urban Areas

In an increasingly dense, dynamic, and complex urban context, the formulation of social policies faces various structural challenges that hinder the effectiveness of implementation in the field. One of the most fundamental challenges is the limited mechanism for accurate data collection and verification of beneficiaries that is responsive to the high mobility of urban communities. Unlike rural areas that are more demographically stable, cities experience rapid population changes due to urbanization, daily migration, and the growth of informal settlement areas. This condition makes it difficult for the government to ensure that the social data used as a basis for policy reflects actual conditions in the field. Often, the data held by local governments is static, not updated regularly, or does not even cover groups of people living in non-official areas such as slums or squatter houses. As a result, many social assistance programs are mistargeted, do not reach those who need them, or are misused by groups who are not entitled to them.

This problem is further complicated by the complexity of coordination between institutions involved in the formulation and implementation of social policies in large cities. Each institution or agency has its structure, work system, and authority that are not necessarily effectively integrated. In many cases, there is overlapping authority and weak information flow between units, confusing at the implementation level. For example, a social program may be under the responsibility of the social services office, while data collection is carried out by the population office, and distribution involves sub-districts and external partners. Without a good coordination system and an integrated data platform, social policies often cannot be implemented synchronously, even causing administrative conflicts between agencies. At the local level, this has an impact on slow responses to the urgent needs of the urban poor who are facing rapidly changing living conditions.

In addition to coordination, administrative and bureaucratic barriers are also major obstacles in policy responses to the dynamics of poverty in urban areas. The bureaucratic system, which is still rigid, hierarchical, and procedurally oriented, is often unable to adapt to the needs of poverty management that require flexibility and

speed. In the decision-making process, many policies take a long time to be approved, tested, and distributed to the community. Poverty conditions in urban areas are often emergency in nature and cannot wait for a long administrative process. For example, in situations of economic crisis or local disasters that suddenly affect vulnerable groups, social assistance policies cannot be implemented immediately because they must go through various stages of verification, budget approval, and procurement. This delay creates a gap between the needs of the community and the government's capacity to provide a timely and adequate response.

Furthermore, the minimal involvement of local communities in the process of formulating and implementing social policies also exacerbates existing structural challenges. Urban communities, especially those living in poor areas, are often not actively involved in policy planning aimed at them. The dominant top-down process in policy formulation means that the resulting policies do not always match local needs, social contexts, and preferences. Local communities are considered only as policy recipients, not as actors with contextual knowledge and capacity to provide meaningful input. Involving local communities can enrich policy perspectives, increase program legitimacy, and strengthen community ownership of the policies being implemented. When communities feel ignored in the policy formulation process, trust in the government decreases, and their participation in supporting program implementation becomes minimal. This has an impact on low policy effectiveness and failure to create sustainable social change.

The above conditions indicate that structural challenges in social policy for urban areas cannot be considered merely technical problems, but are closely related to institutional design and patterns of relationships between stakeholders. Comprehensive reforms are needed in urban social governance, starting from improving data systems, simplifying bureaucracy, strengthening coordination mechanisms, to increasing community participation in every stage of policy. Without fundamental changes to these structural challenges, the social policies implemented will continue to experience limitations in reaching and empowering the urban poor effectively. The formulation of successful social policies must be able to accurately portray the complex realities of urban society, be responsive to local dynamics, and involve all elements of society as active partners in building sustainable social justice and inclusion amidst the ever-moving flow of urbanization.

3. Potential Use of Digital Technology in Social Policy Systems

The use of digital technology in the social policy system opens up great opportunities for the transformation of social governance that is more efficient, transparent, and responsive to the needs of the community, especially in dense and heterogeneous urban areas. One of the main potentials of digital technology lies in its ability to accelerate the process of data collection and mapping of community needs broadly and deeply. Amidst the challenges of high population mobility and rapidly changing social life dynamics, the presence of a digital system that can record, update, and synchronize data automatically is a very valuable asset. Through the use of big

data, artificial intelligence, and the Internet of Things, the government can identify poor community groups more accurately based on relevant socio-economic indicators, so that policy interventions are not only reactive but also proactive in responding to potential vulnerabilities that may arise.

In addition, digitalization allows the birth of a more adaptive and real-time-based social policy service model. Digital systems can be designed to continuously adapt to developments in the field, both in terms of the number of beneficiaries, changes in social conditions, and the availability of resources. By utilizing mobile applications, monitoring dashboards, and digital reporting systems, the government can monitor policy implementation directly, adjust service parameters flexibly, and respond to citizen complaints more quickly. This capability is particularly important in dynamic and complex urban environments, where rigid policies based on annual cycles often fail to accommodate changing needs. With an adaptive digital approach, social services can be adjusted to real-time needs, including in emergencies such as natural disasters, economic crises, or disease outbreaks that directly affect the poor and vulnerable.

The potential of digitalization also lies in the integration of data between agencies, which allows decision-making to be more accurate, evidence-based, and transparent. Through an interconnected information system, data from various sectors, such as health, education, employment, and population, can be combined to form a comprehensive community welfare profile. Thus, social policies are no longer partial and sectoral, but are integrated in a coordinated and mutually supportive intervention framework. In addition to increasing policy effectiveness, data integration also minimizes overlapping programs, avoids misallocation of aid, and strengthens accountability in the management of social budgets. Through this system, the policy evaluation process becomes more objective because it is based on actual and verified data, not just administrative reports or subjective perceptions from implementers in the field.

Furthermore, the use of digital platforms provides ample space for community participation in the process of monitoring, conveying aspirations, and formulating social policies. Technology opens up two-way communication channels that allow citizens to be actively involved in the social development process, not only as objects receiving benefits but also as subjects who play a role in controlling and informing policies. Citizen reporting applications, online discussion forums, and digital survey systems allow the urban poor to voice their experiences, complaints, and needs directly without having to go through lengthy bureaucratic procedures. This encourages the creation of a more democratic, inclusive, and ground-based policy system. In the long term, this digital participation can build trust between the community and the government, strengthen the legitimacy of social programs, and increase compliance with implemented policies.

Thus, the use of digital technology in the social policy system is not just an administrative tool, but rather a strategic instrument in forming policies that are smarter, more humane, and oriented towards real results. Amid the complexity of

urbanization and the challenges of ever-growing poverty, digital transformation can be the key to overcoming the stagnation of conventional policies and creating a social service ecosystem that is more adaptive, measurable, and based on cross-sector collaboration. However, for this potential to be optimally realized, political commitment, adequate digital infrastructure investment, and strengthening the capacity of human resources in technology management are needed. Without this, technology risks becoming an elitist tool that widens the gap, instead of bridging the existing gap. Therefore, the development of a digital-based social policy system must be designed inclusively, contextually, and always in favor of the interests of vulnerable groups in urban society.

4. Formulating an Innovative Model for Digital-Based Social Policy

Formulating innovative models for digital-based social policies requires an approach that is not only technological, but also contextual and humanistic, especially in responding to the needs of the urban poor. The complex and rapidly changing urban environment requires policy design that can respond to social dynamics in real time, while ensuring inclusivity in every stage of its planning. In designing an effective policy model, the principles of responsiveness to the needs of the urban poor must be the main foundation. This includes sensitivity to structural vulnerabilities, inequalities in access to basic services, and the ability of policies to reach populations that are often not formally recorded. A good model must accommodate variations in social and economic conditions between areas within the city, and pay attention to the needs of vulnerable groups such as female heads of households, people with disabilities, the elderly, and informal sector workers who have so far been marginalized from conventional social policies.

The integration strategy between technology, data, and policy design is an important element in developing a sustainable system that can adapt to change. Digital technology can be utilized not only to manage data efficiently, but also to build systems that can learn from previous intervention patterns through machine learning and artificial intelligence-based analysis. Data collected from various sectors, from health, education, housing, to employment, can be synergized to form a comprehensive social needs profile. With this approach, the policy model not only works sectorally, but is interconnected between parts in an integrated public service ecosystem. The sustainability of the system is also determined by its ability to present innovations that are oriented towards the long term, not just temporary solutions. Therefore, it is also necessary to strengthen the capacity of institutions in managing change and formulating policy strategies that are not affected by political fluctuations or the pressure of an ever-increasing urban population.

A collaborative approach between the government, private sector, and local communities is a determining factor in building an inclusive and legitimate digital social policy model. The government cannot act alone in designing and implementing this system without involving other actors who have resources, knowledge, and networks at the local level. The private sector, for example, can contribute to the

development of technological infrastructure, information systems, and digital platform-based service models. On the other hand, local communities have a deeper understanding of the real needs of residents in their environment and can function as a liaison between the policy system and society. Through co-creation mechanisms and multi-sector partnerships, the model formulation process becomes more democratic and can produce policies that are not only technically accurate but also acceptable to the community because of its participatory process. This collaborative model also serves as an important bridge in building a sense of ownership and trust in social policies that are developed digitally.

To ensure the effectiveness and sustainability of the digital-based social policy model, a technology-based monitoring and evaluation mechanism is also needed and is carried out periodically. The digital system allows evaluations not to have to wait for the annual cycle, but can be carried out continuously and based on real-time indicators that are directly connected to the service system. With the analytical dashboard, the government can measure how far the policy reaches the intended target, how satisfied the community is with the service, and to what extent the policy has an impact on improving the quality of life of the urban poor. This kind of evaluation also allows for rapid and measurable policy improvements because the data collected reflects actual conditions on the ground. In addition, the digital system allows for monitoring by third parties, both from civil society, academics, and other independent institutions, so that policy accountability can be maintained sustainably.

Thus, the formulation of a digital-based social policy model cannot be separated from the need to build a smart, inclusive, and collaborative system. The success of this model is highly dependent on the integrative ability between technology and social processes, which is not only based on the sophistication of the tools, but also on political courage, institutional capacity, and the active involvement of all stakeholders. The resulting model must be a reflection of collective efforts to make technology a means of social empowerment, not a new divider between the accessible and the marginalized. In the context of increasingly complex urbanization and urban poverty, digital innovation in social policy is no longer an option, but rather an inevitability that must be built strategically and sustainably.

E. CONCLUSION

The challenges of poverty in urban areas are increasingly complex, along with social transformation and technological advances. The dynamics of the characteristics of the urban poor, the digital divide that triggers social inequality, and the exclusion of vulnerable groups show that conventional policies are no longer adequate to address poverty issues effectively. Various structural challenges, including constraints on data collection, coordination between institutions, administrative bureaucracy, and low community involvement, also slow down policy responses to the real needs of the urban poor. Therefore, an innovative approach that utilizes digital technology strategically is an urgent need in urban social policy reform. The development of an innovative digital social policy model must be based on the

principles of responsiveness, multi-sector collaboration, and integration of technology and data at every stage of its formulation. Digitalization opens up opportunities to create an adaptive, transparent, and participatory system, thereby strengthening the effectiveness of policy interventions and increasing public trust. Digital-based monitoring and evaluation mechanisms also provide space for real-time policy corrections, so that interventions can continue to be adjusted to the dynamics of field needs. With a strong foundation in technology integration and social support, this type of policy model is not only able to accelerate the handling of urban poverty, but also becomes an important foundation in realizing more sustainable social justice in the digital era.

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