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How Will Artificial Intelligence Be at the Service of All City Dwellers?

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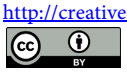

Abstract

Today, 58% of the world's population lives in urban areas, irrespective of continent or city type. These demographic changes are occurring most rapidly in Asia and Africa. The most serious challenges, such as migration, economic and social integration, urban planning, technical networks, housing, schools and hospitals, must therefore be addressed in their cities so that urbanization can create opportunities and offer poor individuals and family's better prospects, rather than creating additional burdens. Of the world's 4.75 billion urban inhabitants, 827 million[1] are living in conditions that constitute poverty. We must engage with these people to understand how AI can help them escape urban marginalization. Smart city is a complex model, but one that aims to make urban life easier for everyone, by taking advantage of technological advances. It is important to acknowledge that the concept and its applications are vary from one country to another. However, the problem and its application in urban reality are significant. Can AI be used to solve it and how this can be translated into applicable solutions? After all, that is the real question. Although based on indisputable scientific knowledge, it raises a multitude of technological, scientific, social and economic questions. Therefore, my central question concerns the development of artificial intelligence within the framework of smart cities, how it is understood by city dwellers, and how it can be adapted to the needs and desires of the disadvantaged. Poverty exists everywhere. My extensive research in Latin America, West Africa and Southeast Asia demonstrates that technological and conceptual innovations have a moral obligation to serve everyone, especially the urban poor, who deserve recognition as both workers and citizens in order to fully participate in urban communities. To address this issue, I suggest taking an original approach that starts by examining the socio-economic needs of marginalized urban residents, and how these needs are addressed by public and private decision-makers. We will then ana-

[1]https://data360.worldbank.org/en/indicator/WB_WDI_SP_URB_TOTL#trend

lyze how new technologies are exploited, focusing on how these innovative urban projects integrate all segments of society without marginalizing the poor. Artificial intelligence, like all high-tech knowledge, is capable of solving complex technical, social, environmental and economic problems and must benefit all members of urban societies in the Global South and beyond. Examples drawn from my extensive research in the Global South will help to contextualize the application of artificial intelligence and recognize it as exceptional technology that can strengthen sustainable development and reduce the social, economic and territorial inequalities that divide the world. Crucial sectors such as communications, information, education and healthcare now rely on artificial intelligence for faster and more effective solutions. The key remaining question is that of its social impact and equitable distribution within society.

Keywords

Poverty, Urban Planning, Global South Cities, Smart Cities, AI

1. The Notion of Urban Intelligence in Southern Cities: Concepts and Case Studies

1.1. Concepts of Cities and Their Evolution: What Place for AI?

As many contemporary urban thinkers have long argued, the city is a social construct. The work of sociologists from the Chicago School and the insights of Manuel Castells as early as the 1960s (Castells, 1968) provide valuable references in this regard. As he states in this article, "Urbanism as a way of life, urbanization is a process organized by a pattern of interaction between man and the environment." This, in strictly sociological terms, is the real object of what has been, and still is, urban sociology. Such texts remain relevant because the contemporary debate now focuses on the "smart city", with the seemingly limitless potential that artificial intelligence offers.

In his work on the sociology of cities, Fijalkow (2017) brings us closer to the crux of the subject when he cites one of the pioneers of urban sociology, Maurice Halbwachs. Halbwachs's work highlights the reciprocal relationship between social forms, organization, configuration and social cohesion—and the resulting material space. This interaction between society, technology, and the materiality of this duality can be harmonious or highly conflictual. Therefore, fundamentally speaking, "building the city" is not a social ideal, but rather an economic investment driven by financial interests. Its purpose is to ensure profitability for its promoters and the material and social well-being of the beneficiaries (Coulondre, 2017; Halbert, 2013; Hassaine-Bau, 2022).

Nevertheless, there is clearly a bias in presenting development solely as a matter of "big money", even if examples of this abound in both European countries and the Global South. Numerous projects driven by maximalist profit-seeking strategies are emerging in these regions, often at the expense of marginalized neighbor-

hoods and vulnerable populations (Boanada-Fuchs & Boanada Fuchs, 2022; Bolay, 2020; Hall & Lobina, 2007). We must therefore find ways to integrate appropriate technologies and contemporary forms of intelligence, both human and artificial, to reinvent the concept of "smart cities" as a model for inclusive cities, and not a modernist extrapolation of the exploitation of "man by man" in an increasingly dominant urban context worldwide, whose growth in the Global South, especially Africa, is staggering.

Contemporary urban trends exacerbate social and spatial segregation more than they contribute to resilience. Yet the effort is worthwhile. We must be pragmatic and recognize the ever-increasing urban population and its growing and increasingly complex needs.

This applies not only to cities and their inhabitants, but also to rural areas and the far reaches of the world. One example illustrates this integration of technological modernity into daily life, transcending prejudices and the rural-urban divide. It clearly exemplifies the integration of technological modernity into people's daily lives, often transcending prejudices and the rural-urban divide. In our work with market gardeners, for example, we developed new soil moisture monitoring technologies in rural Burkina Faso with the support of the Swiss Agency for Development and Cooperation (SDC[2]). Sensors were placed in peri-urban agricultural areas. Farmers were notified via their smartphones as to the optimal time to water their crops and the amount of water needed. All of this information was centralized in the cloud and managed remotely. This ultimately led to the creation of a new company in Ouagadougou specializing in manufacturing and managing this new communication technology. This mutually beneficial initiative would not have been possible without access to cutting-edge technologies that are easy to manage and highly beneficial to society. Market gardeners saved 30% of their water resources and increased their productivity by 30% using this new technology (Ranquet Bouleau et al., 2015).

If this can be achieved in the agricultural and food sectors on the outskirts of cities, it is clear that well-designed and managed technologies can truly be instruments for sustainable urban and rural development.

Through extensive research, we have attempted to reconsider the city of the Global South from the perspective of its poorest populations, who are often economically vulnerable (as they often work in the informal sector without social protection), socially unstable (as rural-urban migration weakens family ties) and spatially marginalized (as they often occupy the least desirable and potentially dangerous land).

Urban poverty involves looking at income, living standards, and socio-economic integration, rather than just a single factor (Poterszman, 2023). Many countries set specific monetary thresholds based on local costs of basic survival and social integration, in order to count and identify who is poor, and possibly implement public actions to help them.

This is partly due to the sheer number of urban poor, especially in developing

[2]https://www.deza.eda.admin.ch/en/country-burkina-faso

countries, and partly due to being marginalized and often scorned by the wealthy. I have witnessed this phenomenon in cities across various countries, including Mexico, Cameroon, Bolivia and Vietnam (Bolay, 2021). Intelligence, first and foremost, is human. It is with this focus on urban poverty that we should rethink the city using new technologies, adopting a collective and open approach. This will enable us to consider the city as a catalyst for profound and shared societal change (F3E, 2012; Belcher & Claus, 2020; Ibrahim, El-Zaart, & Adams, 2017), rather than as an instrument of domination by the wealthy over the less privileged.

How to define a "smart city"

One merely needs to type "smart city" into a search engine and you will find thousands of references. It is interesting to focus on the website of a major company involved in this sector to better understand how this agent of change can inform us about its urban activities. ENEL, an Italian company with a global presence, clearly communicates its idea of a "smart city". For ENEL, "A smart city is a city that integrates digital technologies into its networks, services, and infrastructure in order to become more efficient and livable, thereby benefiting residents and businesses." These innovations are conducive to a multitude of sectors. ENEL refers specifically to European directives.

"According to the European Commission, a smart city requires:

- Smart urban transportation networks;
- Improved water supply and waste disposal facilities;
- More efficient ways to light and heat buildings;
- More interactive and proactive city administration;
- Safer public spaces."

A smart and sustainable city uses information and communication technologies (ICT) to improve quality of life, efficiency and competitiveness while ensuring the needs of present and future generations are met. According to the United Nations Economic Commission for Europe (UNECE, 2021), a smart city should have widespread home connectivity and Wi-Fi in public areas, smart infrastructure, smart meters, open data and e-government solutions.

These international references and their applications bring us closer to understanding artificial intelligence. Indeed, smart cities use the Internet of Things (IoT) devices such as sensors, lights and smart meters to collect and analyze data.

However, let us keep a critical perspective because, behind the facts, urban imagination transports us to extraordinary cities that are often free from any spatial or territorial constraints. It is as if AI and new technologies are already leading us into a futuristic urban world that captivates our imagination.

Artificial intelligence (AI) is a technology that enables computers and machines to simulate human learning, understanding, problem-solving, decision-making, creativity, and autonomy. It impacts all areas of intervention and is an integral part of the technologies defining the "smart city." As Panda, Soller, and Swain (2026)[3] explain, "Advances in sensing, data infrastructure, and AI are enabling

[3]https://www.mckinsey.com/capabilities/tech-and-ai/our-insights/tech-forward/how-ai-native-public-infrastructure-changes-how-cities-operate

cities to manage complex systems—such as transportation, energy, water, health, and permits—not as slow bureaucracies but as continuously operating systems. Indeed, parts of the city are beginning to behave like computing platforms: observing conditions in real time, making decisions automatically, and adjusting operations without waiting for human escalation." The concept of the "smart city" is still young. According to Baraud-Serfaty (2019), "IBM coined the term in 2010. It often remains imprecise, but it has one merit: highlighting the consequences of the digital revolution in cities. And certainly, the recent and exponential development of deep learning, which is one of the essential components of artificial intelligence, should lead us to question how cities are affected. A key development that defines the term of smart city is that the city is increasingly managed using data. Packed with sensors, it is, in effect, motored. In concrete terms, technical systems allow for the processing of data collected in all areas and the optimization of its operation. In this new urban environment, the inhabitant-user-consumer's role changes: they are no longer just a consumer but also a producer—of energy, of available space in their car or home, of information".

The big question remains open, however: What financial, human and technical resources does a city need to enter this type of "modernity"?

Singapore, the hub of new technologies in Asia (Source: photo J.-C. Bolay, 2024).

1.2. Out of the Box, the Reality of Some Global South Cities

This fantasy of a dazzling technological future bears no resemblance to the reality of the many of the cities we have studied across Asia, Africa and Latin America. Perhaps this is where the danger lies, if indeed there is any. In other words, the naïve perception of technology and commerce clashes with the lived reality of millions of city residents in the Global South who are mired in daily struggles and unable to experience this intelligent, digital urbanity in their daily lives, much like the world of a science fiction television series.

Three case studies carried out on three different continents over the last ten

years demonstrate how long and risky the journey is from hyper-technological AI fantasies to a reality comprised of new amenities that would benefit all city dwellers regardless of social class, place of residence or employment status. We are revising the studies carried out on these three long-studied intermediate cities, starting from this prime question: How is an ordinary city in the Global South able to cope with the social demands and innovative transformations required by urban development?

In each of these cities, we adopted an inclusive, iterative, and participatory approach. Based on all available data, which varied from country to country, we developed a research framework focused on three dimensions: the analysis of available data and the planning envisioned by decision-makers. This was then compared with the perceptions of residents and public authorities through in-depth interviews with decision-makers, surveys of the population, and focus group discussions where possible. This has made it possible to greatly differentiate what decision-makers consider to be priorities from what residents consider to be essential for their current well-being and their urban future.

Each study, conducted with scientists from the participating cities, represented a methodological and empirical innovation, aiming to harmonize top-down decisions made by the relevant authorities confronted with the perceptions of the users who benefit from them. This dimension, inherent to fieldwork, is essential for understanding concretely what is planned and what is implemented on the ground, driven by the will of the residents themselves. And is crucial but rarely taken into account. This is crucial but rarely taken into account. This is one factor, though not the only one, that explains the discrepancy between long-term plans and the actual development of cities in the Global South.

Data on the use of new communication technologies in urban planning is scarce, and often nonexistent in most cities of the Global South. Everything remains to be built. And this is a meticulous and long-term undertaking, as we experienced in Argentina: a lack of clearly defined objectives, insufficient resources, and incompetent staff (Bolay, 2018).

Suburb of Montes Claros, Minas Gerais, Brazil (Source: photo J.-C. Bolay, 2016).

Montes Claros is an industrial city of more than 400,000 people in the Brazilian state of Minas Gerais. My colleagues at UNIMONTES, the city's public university, and I were working to gain a better understanding of the urban planning process to be implemented by the city government over the next 10 years, in accordance with Brazilian law. Despite the participatory methods employed, the municipal authorities had simply excluded peripheral areas from their mapping and the surveys aimed at defining future priorities. The federal government has established new housing estates for low-income families in these recently developed neighborhoods. However, political disputes between the local and federal authorities undermined collective intelligence and disregarded the complaints of the new residents. While they were happy to have access to decent housing, which they now own, the new estates were located far from the city center and lacked public transportation services, schools, daycare centers and local shops. At that time, the question of artificial intelligence was not being considered in Brazil. A more comprehensive and critical vision of the urban agglomeration was paramount for planners. It is certain that AI and other innovative technologies would have enabled more cost-effective decisions regarding mobility, education, energy efficiency and housing quality, to name just a few examples. This case study shows that although AI is an extraordinary tool, political will and a humanistic approach to urban planning are necessary to utilize these highly innovative technologies for the benefit of all (de França & Bolay, 2021; Bolay, 2016).

In this case, we were fortunate, thanks to our colleagues at UNIMONTES, to have access to the data collected by the authorities to make their decisions: No numerical data, a selection of partners qualified to give their opinion, and a territorial approach limited to long-established built-up areas, neglecting urban expansion and the actors who drive it.

This can only lead to a biased representation of reality, and decisions that only affect a portion of the urban population.

River habitat in Chau Doc along the Mekong Delta, Vietnam (Source: photo J.-C. Bolay, 2019).

Chau Doc is a Vietnamese city on the Mekong Delta near the Cambodian border, 235 kilometers from the megacity of Ho Chi Minh City (formerly Saigon). With a population of over 160,000, it is experiencing rapid demographic and economic growth (Bolay et al., 2019).

The people of Chau Doc are primarily fish farmers who live on the water in a traditional manner. Yet, they depend entirely on the national and international economies for selling their fish. Will their needs be considered in the planning being implemented in the Mekong Delta region? My geography colleagues at the National University of Ho Chi Minh City are raising this question. This is not the only question that needs to be addressed, given that Vietnam has experienced explosive economic growth over the past three decades and has the resources to invest and make strategic choices. Once again, a comprehensive approach to planning and prioritization is essential but still lacking. As elsewhere, this is due to the increasing daily problems faced by both the population and the authorities at the local level.

Chau Doc is strategically important because it borders Cambodia and is a popular destination for Cambodian migrants who cross the border in the hope of finding a better future in a more advanced economy. This is but one facet of population growth that defines the prosperous Mekong Delta region as a whole. Agriculture is booming, fostering numerous related agribusiness industries. The Mekong Delta accounts for almost 13% of Vietnam's GDP and is its main agricultural center. However, its share of the national economy has decreased from almost 20% before 2000 to around 12.4%, as the country shifts towards industrialization and urban manufacturing. The region's agricultural dominance is apparent everywhere and it continues to drive national food security and global supply chains by producing 50% of the country's rice, 65% of its aquaculture and 70% of its fruit yields (World Bank, 2025). In addition, Chau Doc is gradually becoming a destination for religious tourism.

These widespread changes are difficult for local and regional authorities to manage. Like most cities of this size, the authorities here face enormous challenges with limited resources.

We attempted to follow our methodology, but in Vietnam, statistical data is not publicly available. The fact remains that the concept of a "smart city" is entirely absent from the urban strategy implemented by local and regional authorities. We are in a highly hierarchical system of public decision-making where technological innovation trickles from the central government to the two major metropolises of Hanoi and Ho Chi Minh City, and then gradually to other cities in Vietnam. AI was not mentioned at all in 2019 as a tool to support urban governance. But things are changing very quickly in this country, and it is highly likely that radical transformations will have taken place in territorial planning in the coming years.

Therefore, it was first through interviews with local and regional authorities that we gained an understanding of the challenges facing Chau Doc.

We followed a methodological approach inspired by anthropology, prioritizing in-depth interviews with representatives of public authorities, random interviews

with people encountered on the street, and a survey conducted by students from the Department of Geography at Vietnam National University, Ho Chi Minh City. Based on a questionnaire focusing on people's urban integration, their economic and social activities, their assessment of the urban situation, and their projections for future development, we interviewed 50 people distributed across four residential neighborhoods in the city, selected according to their socioeconomic status and length of residence.

As is the case in most cities in the South, there are no databases to guide decision-making. In this respect, our interviews with residents were invaluable, as confirmed by the public officials we consulted.

Based on their statements and the technical documents consulted, the authorities are prioritizing investments in two sectors, namely roads and a drainage system. The absence of a drainage system currently results in flooding and water pollution, as wastewater is dumped into canals and rivers. Garbage collection and treatment are also major issues for the city. Traffic jams, a lack of parking, and inadequate public transportation are particularly problematic during festivals due to the archaic road network comprised of narrow streets with no infrastructure to regulate traffic. The residents are not consulted at any point during the planning process, even though the surveys we conducted in different neighborhoods revealed that citizens are concerned not with the authorities, but with feeling uninvolved in these infrastructural changes, and were worried about their future. Unlike in other countries, residents of Chau Doc have regularized land and property ownership. They are directly concerned about the future of the city and their own future because they see expropriations and reductions in property size due to construction work. There is an urgent need to address their concerns. Those interviewed by Vietnamese geographers expressed their doubts and lamented the lack of information. However, despite this sensitive issue, communication between the population and the authorities remains deficient. It is equally clear that Vietnam's existing technological resources, enhanced by artificial intelligence, could facilitate more effective communication between authorities and citizens, fostering harmony and a shared vision. These resources are present in Vietnam, but they need to be adopted and used appropriately. However, in a medium-sized city like Chau Doc, advanced technologies readily available in Ho Chi Minh City are absent. Furthermore, local and regional public authorities lack the human resources to manage these new urban governance tools.

We worked with colleagues from 2IE[4] in Burkina Faso for many years. As part of a postgraduate training program, we taught young professionals from all backgrounds the fundamentals of sustainable development and ways to apply them. During my last visit, its capital, Ouagadougou, was gripped by widespread insecurity. Armed guards stood outside restaurants, and few people ventured out. The situation worsened with the September 2022 coup d'état (Engels, 2025). Burkina Faso, known as the *pays des gens intègres* (land of upright men) and a source of

[4]https://www.2ie-edu.org/

pride for the population as well as a haven for international cooperation organizations, became a center of conflict and massacres. Since that time, the elected government has been overthrown, leaving a military junta in power. This insecurity has spread to many other parts of the country. Given this situation, it is likely that the issue of new urban technologies is not a priority.

A main street in Koudougou, Burkina Faso (Source: photo J.-C. Bolay, 2015).

To conduct this research in Koudougou in 2015, we had to adapt our investigative methods to the realities on the ground. In Burkina Faso, as in other sub-Saharan African countries, new technologies have developed through the use of computers, smartphones, and access to information found on the internet. The 2022 coup d'état and the withdrawal of international donors have significantly hampered the economic development of one of the world's poorest countries. My Burkinabé urban planner colleague and I worked using a method inspired by field anthropology, conducting in-depth interviews with representatives of the public administration, observing the situation in the field, and talking with residents. The use of advanced information technologies and their adaptation to urban conditions are virtually nonexistent. When artificial intelligence was mentioned, it was simply not recognized by those we spoke with.

To illustrate, compare the planners' projections with reality. Ouagadougou, a Sahelian city, suffers from a lack of financial and human resources, infrastructure, and equipment, as well as limited amenities (Belemviré, 2020). However, like almost all national capitals in Africa, it continues to attract both individuals with regard to immigration. What about the other cities that constitute the national urban network? My Burkinabé urban planning colleague and I traveled to Koudougou, the country's third most populous city after the capital and Bobo Dioulasso, to study its realities. We realized that the national capital was privileged, while its provincial counterpart suffered from deeper, seemingly intractable problems (Bolay, 2015).

In Burkina Faso, Koudougou is considered a rebel city. Both its political leaders and its population have frequently protested unilaterally imposed decisions, even though it is home to over 100,000 people and is the prefecture and capital of the

Boulkiemdé province. Ten years ago, the city's concerns were not centered on the use of new technologies but rather on the rationale behind key decisions, given the notoriously insufficient public budget to meet the population's basic needs. Only partial funding from international donors addressed this shortfall. Swiss and French cooperation agencies were the main contributors, each providing funds according to their own guidelines. Switzerland contributed significantly to improving the city's main market, while France's support targeted developing a sanitation and waste collection system. Nevertheless, these failures persist.

When I asked the mayor, a bank executive deeply committed to his role, how he could achieve more with such a small municipal budget—less than a million euros per year, two-thirds of which was allocated to paying public employees—, he replied, "We have so many needs that there's no point in planning. Our planning consists of having a catalog of projects to support financially and technically. And each foreign donor decides which sectors and projects will be subsidized. And we, the Municipality of Koudougou, manage this as best we can and use our limited resources to deal with daily challenges."

Through these three examples, which are typical of many cities and representative of urban growth in the Global South, I wish to question the principles of sustainable cities, the cliché of smart cities, and the potential role of AI.

Large numbers of urban residents worldwide, especially in the Global South, live outside this hyper-technological reality; they are far removed from AI's potential and inclusive technology solutions in contexts of precariousness and poverty.

In this respect, it would be useful to combine four fundamental elements that are too often ignored. These elements might allow us to create smart cities that are beneficial to everyone. First, we must identify the social needs of all urban residents. Second, we must prioritize basic needs for the benefit of the entire population. Third, we must examine which technologies are most appropriate. Finally, we must consider the available resources to achieve these objectives because, when it comes to urban planning, a realistic approach is essential.

A rational and effective use of AI would first consider users' needs and demands, particularly those of the poorest and most marginalized populations. How can we leverage AI's impressive capabilities and relevant technologies to tackle some of the most pressing human issues, such as poverty (Goralski & Tan, 2022), precariousness (Campbell & Laheij, 2021), marginalization (Haque & Shafiri, 2024), and professional skill gaps (Chakrabarti, 2023)? New scientific discoveries and their application to innovative technologies must benefit everyone. Reconciling technology and humanism would be a giant leap toward social progress and a harmonious vision of future societies in both the Global South and Global North (Messner, 2020).

2. Smart Cities: Considering the Reality of Cities in the Global South

The question of smart cities has gained momentum in recent years for two reasons. First, technology has advanced, enabling us to approach urban problems

such as mobility, transportation, infrastructure maintenance, public space development, and housing in innovative ways (Bolay & Kern, 2011). The second reason is the rapid growth of the urban population, particularly in Southern countries. Cities are becoming increasingly vulnerable to environmental risks and climate change. This is true for all cities, regardless of their location or size. However, the desire for smart, sustainable development in Global South countries merits questioning, given the many challenges and lack of financial and human resources these cities face.

As exposed by Mhlanga (2026), "rapid urbanisation across Africa is placing increasing strain on urban governance systems, intensifying long-standing challenges such as infrastructure deficits, inefficient service delivery, and limited institutional capacity. Within this context, Artificial Intelligence (AI) is emerging as a potentially transformative tool for advancing smart city development. By enabling data-driven decision-making, predictive analytics, and real-time monitoring, AI offers opportunities to enhance operational efficiency and improve the delivery of essential urban services".

Despite the growing interest in AI-enabled smart cities, there remains a significant gap between technological potential and governance readiness in Global South contexts. Most smart city models are imported from developed economies and often fail to reflect the socio-economic realities and institutional constraints of Southern cities. United Nations has established a new set of priorities for sustainable development on a global scale. Of the seventeen objectives targeted for 2030[5], one focuses specifically on making cities and communities sustainable[6], inclusive, safe, and resilient places where people can live decently, participate in the city's production dynamic, and create shared prosperity and social stability without harming the environment. The ten priority areas that should guide urban development in the coming years are housing, basic services and slum upgrading, transportation, urban planning and management, protection of cultural and natural heritage, disaster risk reduction and mitigation, environmental protection, equitable access to green spaces, connections between rural and urban areas, and technical and financial support for using local materials in construction.

These goals are commendable and relevant given the many ongoing urban issues. However, they seem more like a vast, loosely designed catch-all. Despite their generality, which allows for myriad interpretations by urban stakeholders, it is surprising that topics as universal as insecurity (perceived or real), drinking water supply, wastewater treatment, solid waste management, informality, and the urban economy are not mentioned despite being among the urban MDGs in 2000 (Bolay, 2012).

The concept of the "smart city" was first debated in the 1990s. At that time, the focus was on the role of new information and communication technologies (ICT) in developing new urban infrastructures. However, the concept was criticized as

[5]http://www.undp.org/content/undp/en/home/sustainable-development-goals
[6]https://www.un.org/sustainabledevelopment/cities/

being too technology-focused and limited in scope. According to Albino et al. (2015), several authors expanded on this topic by incorporating the city's leadership role (also a component of the "smart city") and a strategy that prioritizes user-friendliness over terms like "smart city" or "digital city." Of the definitions discussed in the article, the most comprehensive includes the idea of "modernity" as comprised of cutting-edge technologies, cross-sector collaboration, and user-friendliness. The key idea is not technology for its own sake or better-designed and controlled infrastructure but rather connectivity and interconnectivity between individuals and between individuals and new communication technologies. Bakici et al. (2012) also offer a definition that emphasizes these social, institutional, and technological exchanges: "Smart city as a high-tech intensive and advanced city that connects people, information and city elements using new technologies in order to create a sustainable, greener city, competitive and innovative commerce, and an increased life quality" (Bakici et al., 2012: p. 139).

While technological contributions are indispensable, especially with the recent emergence of AI capacities, their strength and relevance depend on people and their creativity and desire to play with technology, partake in local life, generate new knowledge, and improve living conditions. Social capital is therefore a fundamental dimension of projects. These principles help explain the appeal of AI and "smart city" projects. Lartey and Law (2025) demonstrate that expected success and progress differ greatly from region to region. However, we must remain realistic, as enthusiasm for new forms of communication is driven by the interests of private companies that know the profitability of investments in AI and innovative urban technologies.

Many authors have worked on the smart city concept, approaching the field according to specific grids. Giffinger and Haindlmaier (2010), however, broke this down into six components to describe the different aspects of this type of city. These components are smart economy, smart mobility, smart environment, smart people, smart living, and smart governance. The overarching goal is to improve quality of life. A battery of indicators was established for each component to calculate the level of "smartness" and, by extension, the focal points for each of the cities studied. Albino et al. (2015) explain how these elements interact with one another: "A city has networked infrastructure that enables political and social efficiency and cultural development; an emphasis on business-led urban development and creative activities for the promotion of urban growth; social inclusion of various urban residents and social capital in urban development; the natural environment as a strategic component for the future."

The smart city concept is not entirely incompatible with the SDGs[7]. When applied to cities, sustainable development raises questions about the equitable distribution of human activities across a given territory (Ahvenniemi et al., 2017; Bolay, 2012). Case studies show that sustainable urban development focuses more on environmental and social dimensions, with entry points such as waste, water,

[7]https://sdgs.un.org/goals

and the built environment relating to the ecological dimension, and health, safety, and well-being relating to the social dimension. In doing so, it somewhat abandons certain economic aspects of sustainable development. The 'smart city concept adds a technological component to implementing these objectives with inroads regarding science and innovation. The entrepreneurial and economic dimension thus becomes central, with private companies implementing the vast majority of these innovations in agreement with public authorities responsible for key sectors (water and sanitation, waste treatment, transportation, energy, etc.). Artificial intelligence is now playing an increasingly important role[8].

Monfaredzadeh and Berardi (2014: p. 1064) stress that "amid profound economic, social and technological changes, cities around the world are facing the challenge of reconciling the needs of immediate competitiveness with long-term sustainable development". The apparent dichotomy between competitiveness and sustainable development is problematic because these concepts appear indiscriminately on many city agendas without further explanation. When comparing sustainable and smart cities, the authors argue that urban issues must be tackled using a multidimensional approach. They also draw a parallel between the two models in order to redefine urban studies in a more coherent manner, based on the strengths and weaknesses inherent in both approaches.

3. Smart and Sustainable: What Criteria for Planning the Development of Global South Cities?

South cities are diverse; their characteristics cannot be generalized categorically. Nevertheless, several features allow us to look beyond their distinctive characteristics and establish a framework of similarities and differences. The first common feature of cities in the Global South is strong demographic growth, particularly in Africa and Asia. According to United Nations statistics, 90% of urban growth worldwide will occur in these regions. A second feature of cities in the Global South is that this demographic growth has led to spatial fragmentation and socioeconomic segregation, including increasing mass poverty and slum expansion. Today, slums are home to more than a billion poor people[9] (UN-Habitat, 2016; World Bank, 2013). This figure is expected to increase considerably, reaching nearly three billion by 2050[10].

Global South cities are also characterized by the informalization of a significant portion of their economies. This leaves workers, who are often entrepreneurs, without job security or on-site safety standards, placing them outside legal and regulatory frameworks. Depending on the city, this unstable labor sector can account for 50% to 80% of active workers (Cohen, 2016). Given these indicators, it is essential to determine the priorities regarding sustainable urban development

[8]https://unglobalcompact.org/compactjournal/artificial-intelligence-and-sustainable-development-goals-operationalizing

[9]https://unstats.un.org/sdgs/report/2024/Goal-11/

[10]https://www.context.news/socioeconomic-inclusion/worlds-slum-populations-set-to-surge-as-housing-crisis-bites

in order to establish guidelines that underpin public policy.

Global South cities are not uniform. They differ primarily in population size. As we discussed in our article (Bolay & Kern, 2019), small and medium-sized cities suffer from a lack of financial resources, preventing them from investing the knowledge and technical means necessary to properly manage urban infrastructure and services. Conversely, metropolises and very large cities can invest in technological innovations and evolve into "smart cities." These territorial and demographic distinctions are accentuated by the economic development and wealth creation specific to each city. Once again, it is clear that the most prosperous cities, those best endowed with human skills and financial resources, are the ones that will implement the most modern management systems, leveraging cutting-edge technologies and AI.

Three interrelated processes contribute to the gradual impoverishment of Global South cities (Tannerfeldt & Ljung, 2006). The first is unemployment and underemployment, which, combined with economic liberalism, strengthen informal urban work practices. The second are environmental issues that are not addressed prior to urban development projects, resulting in the degradation of natural resources. Finally, access to quality housing is limited by the number of available units and the financial means of urban inhabitants, which leads to an increase in slums and to other forms of instability.

Therefore, urban planning must serve as a means to organize territory and human activities in a rational and coherent way. This will ensure the sustainable inclusion of all citizens in key areas that offer decent living conditions, promote an economy that provides jobs and stability for working people, and ensure the respectful use of natural resources. From this perspective, AI and new technological tools would be extremely useful insofar as they are accessible.

Creating a link between urban planning for sustainable development and "smart" cities means reevaluating performance indicators in light of technological innovation and citizen participation. This allows us to combine the issue of sustainable urban development with criteria for identifying smart cities and evaluating their compatibility.

This first comparative analysis highlights the connections between the concepts of sustainable cities and smart cities. However, in the context of Global South cities, it is the disparities among inhabitants and regions that primarily characterize urban dynamics.

Regarding the smart city, two of its key features should be distinguished: The first is artificial intelligence (AI) and technological innovation, with a focus on new information and communication technologies (NICT)[11]. The second is priority categories for organizing the city, such as environmental technologies, mobility management, and traffic (see **Table 1**). As Lea argues, "A smart city is not just a city that leverages new technologies, but is a complex ecosystem made up of

[11]Mahashreveta Choudhary. Six technologies crucial for smart cities. (https://www.geospatialworld.net/blogs/six-technologies-crucial-for-smart-cities/).

many stakeholders including citizens, city authorities, local companies and industry and community groups. It should be emphasized that the geographical boundaries of what is called a smart city may be wider than the city itself, gathering multiple governance bodies and municipalities to define services at the metropolitan or regional scale" (Lea, 2017: p. 3).

Table 1. Comparing sustainable urban development and smart cities.

Sustainable Urban Development	Smart city
Demographic growth	**Smart mobility, smart economy and smart people** In terms of mobility, urban-rural relations largely depend on transportation and ICT infrastructure outside urban centers, which facilitate commuting rather than emigration. This results in local and regional accessibility. From an economic standpoint, the pervasive issue of informality is inextricably linked to the globalization of the market. Given the relationship between economic liberalism and job insecurity, it is clear that the informal sector is ideal for developing entrepreneurship and productivity. As for people, it has been shown that the pull factors leading to urban immigration are more prevalent among creative and flexible individuals, who choose this option primarily for reasons of employability as well as to improve their children's education. The three sectors to address are education, health, and work.
Territorial fragmentation and slums	**Smart living, smart governance and smart environment** Due to their precarious nature, lack of infrastructure, and impoverished inhabitants, slums may seem like the antithesis of smart living. However, they can also be seen as a bottom-up alternative for low-income urban residents who use their energy and knowledge to build neighborhoods that facilitate their integration into the urban system and increase their potential for individual and collective development. For urban public policies in the Global South to be effective and legitimate, they must consider people's needs and demands. This requires context-specific urban planning and multi-stakeholder management that enables democratic participation in the selection of projects as well as the monitoring of their implementation.
Environmental degradation	**Smart environment, smart living and smart governance** Pollution of natural resources in urban areas is a particular concern in most southern cities. It impacts individuals' health in urban areas as well as water supplies and air quality air in outlying areas, even distant rural areas. The government must manage natural resource protection efficiently, and urban residents and public and private businesses must participate. A legislative framework and financial resources are imperative, as is the political will of stakeholders to preserve the environment. This is one of the most fundamental challenges in smart governance because it is one of the pillars of sustainable development. Without its implementation, smart living is simply not feasible. Two complementary issues must also be considered. First, addressing environmental issues means grappling with climate change. The urgency of this issue depends on the city's geographical location and spatial configuration (rising water levels, drought, clean water supply, hurricanes, etc.). Second, a smart environment encompasses not only the natural environment, but also the built environment. This includes buildings and infrastructure whose maintenance and improvement contribute to overall urban well-being and thus to smart living.

Continued

Economic informality	**Smart economy, smart environment, smart living and smart governance** A smart economy is both innovative and productive. From a sustainability perspective, however, it must also provide quality jobs and be environmentally friendly in terms of production and waste recycling. It is also an essential component of sustainable urban development, alongside social and environmental dimensions. In Global South countries, the urban economy contends with the informality of entire industries. In certain cities, as much as 80% of the workforce is employed informally, operating as freelancers without safety standards or job security. Due to its social and environmental impact, the smart economy transcends individual sectors. In the Global South, it can only truly take hold and spread within a framework that aims to implement smart governance of cities and human activities.
Urban management of poor cities	**Smart living, smart governance and smart people** At first glance, some smart city indicators might not seem applicable to small and medium-sized cities, which represent 50% of the global urban population. Examples include cosmopolitanism, open-mindedness, level of qualifications, and social and ethnic diversity. One of the major challenges to universalizing the smart city concept is the ability to include all types of cities in both the Global North and Global South.

The city is a complex ecosystem that relies on multiple interconnected technologies to operate efficiently. These technologies are intended to greatly improve the urban environment and quality of life for residents and workers. There are numerous examples on the internet, including cleaner collective and individual transportation, more efficient use of energy sources (heating, transportation, etc.), sensors to track air quality[12], waste collection, leak detection, automated water distribution[13], smart streetlights, microgrids, and environmental monitoring[14]. Numerous other projects and ideas are also referenced.

This first comparative analysis also reveals that the smart city is based on 'implicit' models and approaches that more than likely are not aligned with the development reality of most South cities, which face poverty and segregation.

Therefore, it is necessary to alert promoters of smart cities to be particularly attentive to the framework conditions in which such initiatives can drive sustainable urban futures, drawing parallels between the SDGs and the contributions of new technologies.

Smart living and smart environments focus on issues of urban precariousness, poverty, and territorial fragmentation. This aligns with the SDGs' goal of promot-

[12]Oshin. What is a Smart City and How Will They Help the Environment? (https://greenerideal.com/news/top-3-global-smart-cities-helping-environment/).
[13]Deloitte. Smart City & Urban Transformation. (https://www.deloitte.com/in/en/Industries/government-public/collections/smart-cities-and-urban-transformation.html).
[14]McKinsey & Company. Smart cities: Digital solutions for a more livable future. (https://www.mckinsey.com/capabilities/operations/our-insights/smart-cities-digital-solutions-for-a-more-livable-future).

ing inclusive and livable cities. Smart environments inherently integrate slums and create equal access to quality infrastructure and services, which require appropriate technologies that are available to all citizens. However, this material and human convergence is rarely discussed as regards AI and smart cities.

The same can be said about the urban economy, which is undoubtedly an expression of creativity, flexibility, and entrepreneurship for a growing number of people in the Global South. However, other dimensions of the smart economy are needed to bridge the gap between the formal and informal economic sectors in Global South cities. At present, the informal sector is a particularly notorious example of man exploiting man. A "modern" economy that includes developing countries in globalized trade is possible but comes at a high financial, social, and environmental cost. Few authors cite ways to introduce poor cities to such intellectual horizons.

In closing, the smart city does not question the modalities of its future transformation. Again, implicitly, the focal points of intervention, the projects cited here as examples, and the pilot cities involved in this new urban development trend tend to be large urban centers located in Western countries or highly industrialized regions such as China or elsewhere in Asia. The challenge now is applying this technological modernity to ordinary cities in the Global South (Robinson, 2006, 2022).

4. Conclusion: Urban Planning in the Global South; Using AI and Creating Inclusive Smart Cities That Everyone Can Benefit from

The smart city is a popular concept that resonates across the urban world. Identifiable, it links us to our immediate environment and to the vast, virtual global village to which we belong via smartphones, laptops, and Bluetooth connections.

However, in this ambitious emulation that aims to use new technologies to enhance quality of life, well-being, and the management of existing resources, implicit prejudices could challenge the concept's universality. More specifically, these prejudices could hinder its adaptation to contexts like those of Southern cities, which often lack resources, human skills, and financial means.

Urban planning in the Global South is widely regarded as a failure when we apply a decades-old model of urban organization developed in Northern countries to Southern cities as a "guidance tool". These technical and managerial strategies obviously fail to address social and geographical issues and should be incorporated into urban governance based on identified needs and social demands. This process must consider sustainable urban development, namely social inclusion, poverty alleviation, and environmental protection.

Innovation in urban planning can complement the smart city model when it takes into account the diversity of South cities and the issues they face. This implies that links between innovative technologies and friendlier, greener cities that improve quality of life must align with urban management priorities and financial

resources. This can be achieved by integrating citizens socially and economically and by reorganizing the territory using innovative, robust, inexpensive technologies that are easy to maintain. This technological and societal innovation will then take on renewed meaning: smart cities for sustainable development. AI will certainly play an important role by providing enormous capabilities at a low cost to consumers. In the right hands, AI technologies will provide innovative management tools.

The smart city concept and how it can be applied to real cities is still in its infancy. For this reason, we propose paying close attention to how these technologies would be used before implementing them in the Global South. While these technologies appear highly profitable for many global high-tech companies, it is crucial that this profitability extend first and foremost to Africa, Latin America, and Asia, which are also home to the world's poorest countries and cities. This requires smart governance involving all urban stakeholders, who must prioritize the common good over special interests.

These priorities must be established on the global agenda. Without this, the gap between rich and poor countries, the privileged and underprivileged, and urban precariousness and elite overconsumption will only widen. Why not approach this major forthcoming challenge head on by addressing the issues rather than feigning globalized urban conviviality and masking inequalities in access to urban resources? Lefebvre's (1968) call for the right to the city is still relevant today, despite technological advances that offer new opportunities for sharing urban spaces. The choice is ours, as is the effort to work towards this goal.

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The author declares no conflicts of interest regarding the publication of this paper.

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