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PUBLIC-PRIVATE PARTNERSHIPS AS CATALYSTS FOR SMART CITIES IN MOROCCO: INTEGRATING AI, IOT, AND SUSTAINABLE INFRASTRUCTURE

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Abstract:
As cities around the world face growing challenges due to rapid urbanization, smart cities are becoming essential solutions. These cities rely on advanced technologies such as Artificial Intelligence, the Internet of Things, and sustainable infrastructure to enhance governance and improve the quality of public services. In the Moroccan context, the development of smart cities is gaining significant attention, and we see Public-Private Partnerships as essential mechanisms for bridging the gap between public needs and private innovation. In this study, we examine the contribution of Public-Private Partnerships to Morocco's smart city initiatives, with a particular focus on how they support the integration of digital technologies and sustainable infrastructure. Our analysis draws on empirical literature, selected case studies, and qualitative data to better understand the current status of smart city projects in Morocco. We also explore key challenges these initiatives face, including regulatory complexity, financial constraints, and technological limitations, while assessing the extent to which PPPs can drive innovation and efficiency. By comparing Morocco's experience with international best practices, we seek to offer practical recommendations for enhancing the PPP framework. Our findings point to the need for more robust policy frameworks, greater engagement from the private sector, and the development of innovative financing tools to ensure the successful evolution of smart and resilient cities in Morocco.

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1. Introduction

The accelerating pace of urbanization in the 21st century has placed unprecedented pressure on cities to deliver efficient, inclusive, and sustainable services. In response to these challenges, the concept of smart cities has emerged as a strategic paradigm, leveraging advanced technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), and data analytics to optimize infrastructure, enhance service delivery, and promote citizen participation (Albino, Berardi, & Dangelico, 2015). Smart cities are no longer aspirational; they are becoming a global necessity, particularly in rapidly developing regions where urban populations are growing the fastest (Batty, Axhausen, Giannotti, & Bazzani, 2012).

In Morocco, urban centers are expanding rapidly, with over 64% of the population expected to live in urban areas by 2030 ((HCP), 2023). However, this rapid growth has intensified infrastructure demands and exposed gaps in public service provision, particularly in mobility, energy, waste management, and digital inclusion (Aboughazi & Hnizil, 2023); The Moroccan government has expressed strong political will to advance smart urban development, as illustrated by flagship projects like Rabat and Casablanca Smart Cities. Yet, the implementation of such initiatives remains constrained by limited public funding, technological capacity, and institutional coordination.

Public-Private Partnerships (PPPs) have emerged globally as an effective model for overcoming these limitations by mobilizing private capital, innovation, and managerial efficiency to support public objectives (Grimsey & Lewis, 2004). In the context of smart cities, PPPs are increasingly being used to co-develop digital infrastructure, implement real-time data systems, and promote sustainable urban innovations (OECD, 2023).In Morocco, the strategic use of PPPs in infrastructure development is growing, but their role in smart city governance remains underexplored in both policy and academic circles.

This study seeks to address this research gap by exploring the following questions: How do PPPs contribute to smart city initiatives in Morocco? What are the main challenges and opportunities associated with these partnerships in the Moroccan context? What insights can be drawn from international experiences to strengthen the country's smart city strategy? The objective is to evaluate the effectiveness of PPPs as catalysts for AI, IoT, and sustainable infrastructure integration in Moroccan urban areas, while also identifying best practices and policy recommendations to support future projects.

By combining empirical literature, case study analysis, and international comparisons, this article aims to contribute to the understanding of how Morocco can

leverage PPPs not just to build smarter cities, but also to promote inclusive, sustainable, and resilient urban development.

2. Review of Empirical Literature

The concept of smart cities has attracted growing attention in both academic and policy spheres as a multidimensional solution to urban challenges.

According to (Caragliu, Del Bo, & Nijkamp, 2011), a smart city integrates physical, digital, and institutional infrastructures to improve economic competitiveness and quality of life. Recent studies emphasize the transformative role of digital technologies, particularly Artificial Intelligence (AI) and the Internet of Things (IoT) enhancing public services, urban mobility, energy efficiency, and citizen engagement (Abaker, et al., 2016).

In parallel, Public-Private Partnerships (PPPs) have emerged as critical governance mechanisms for delivering complex urban infrastructure, especially in contexts with limited public resources. (Grimsey & Lewis, 2002) argue that PPPs can bridge investment gaps and accelerate innovation by leveraging private-sector expertise. In the domain of smart cities, PPPs are increasingly recognized for enabling the co-creation of technologically advanced solutions (OECD, Smart Cities and Inclusive Growth: Building on the Outcomes of the OECD Roundtable, 2020). Empirical studies from countries such as India, South Korea, and France demonstrate how PPPs have been instrumental in implementing smart transport, digital platforms, and green energy systems.

Despite this global progress, the empirical literature on PPPs and smart cities in Africa and particularly in Morocco, remains relatively scarce. A few recent contributions, explore Morocco's growing use of PPPs in urban development, but often without a deep analysis of the digital or smart components. Nevertheless, Morocco has launched several smart city-related initiatives, such as Casablanca Smart City and the Sustainable City of Zenata, which offer promising case studies for evaluating the role of PPPs in integrating AI, IoT, and sustainability.

Several persistent challenges continue to hinder the effective implementation of smart city projects through public-private partnerships. These include fragile institutional frameworks, ambiguities in risk-sharing mechanisms, insufficient digital infrastructure, and a lack of technical expertise at the local government level. Overcoming these obstacles requires more than just robust legal and financial frameworks; it also calls for the creation of a supportive ecosystem that promotes innovation, builds mutual trust, and ensures transparency between public and private sectors.

This literature review reveals that while international experience offers rich insights into PPP models for smart city development, there is a significant need to contextualize these findings in the Moroccan setting. This study contributes to closing this gap by examining how Morocco can strategically use PPPs to drive its smart city agenda.

3. Material and Methodology

This study is based on a qualitative and documentary research approach, relying exclusively on secondary data to explore the contribution of Public-Private Partnerships (PPPs) to the development of smart cities in Morocco. The objective is to examine how PPPs are being used to integrate Artificial Intelligence (AI), the Internet of Things (IoT), and sustainable infrastructure into urban development strategies.

3.1 Data Collection

All data were collected from existing literature, including peer-reviewed journal articles, academic books, institutional reports, government publications, and case studies. Emphasis was placed on both international and national sources that address the intersection of PPPs, smart cities, and technological innovation. Special attention was given to studies focused on Morocco, particularly projects like Casablanca Smart City and the Zenata Eco-City, as documented in official and academic sources.

3.2 Method of Analysis

The collected documents were analyzed through thematic content analysis, identifying key patterns and concepts related to governance models, financing mechanisms, risk-sharing practices, digital infrastructure development, and sustainability integration. This method allowed for a structured comparison of theoretical insights and practical experiences from Morocco and other international contexts.

3.3 Scope and Limitations

This research does not involve the collection of primary data such as interviews or surveys. As such, the analysis is limited to published and accessible materials, which may not fully capture the most recent or unpublished developments in Moroccan smart city initiatives. However, by synthesizing a wide range of credible sources, the study aims to provide a comprehensive understanding of the current landscape and the strategic role of PPPs in enabling urban digital transformation.

4. Results and Discussion

This section analyzes secondary data from scholarly and institutional sources to assess the role of Public-Private Partnerships (PPPs) in Morocco's smart city development. The focus is on how PPPs facilitate the integration of Artificial Intelligence (AI), the Internet of Things (IoT), and sustainability, while also identifying challenges and lessons from global case studies.

4.1 Current Landscape of Smart City Projects in Morocco

Several Moroccan cities have initiated smart urban development projects in collaboration with private actors. Casablanca Smart City and Zenata Eco-City are among the most prominent.

Table 1: Comparative Overview of PPP-Based Smart City Projects in Morocco

Project	Public Partner(s)	Private Partner(s)	Digital Technologies Used	Sustainability Features	Implementation Challenges
Casablanca Smart City	Casa Développement, Wilaya	IBM, Cisco	Smart traffic, e-governance	Energy efficiency, smart waste	Coordination gaps, limited citizen involvement
Zenata Eco-City	SAZ (CDG Group), Ministry of Housing	Bouygues Immobilier, Veolia	Smart grid, sensors, BIM	Green housing, renewable energy	Regulatory delays, financing constraints
Rabat Ville Intelligente	Rabat Municipality, ANRT	Maroc Telecom, start-ups	Smart lighting, surveillance	Public spaces, digital administration	Lack of a clear PPP framework, limited funding
Benslimane Smart Zone (planned)	Ministry of Interior, local gov't	Huawei, Schneider Electric (projected)	IoT platforms, AI for logistics	Circular economy principles (planned)	Early-stage planning, unclear private involvement

Source: Authors' elaboration.

The table presents a comparative overview of selected smart infrastructure projects in Morocco developed through Public-Private Partnerships (PPPs). These projects vary in terms of PPP maturity levels, stakeholder composition, technological integration, and sustainability orientation.

The Casablanca Smart City project, characterized by a strong PPP structure, involves major international technology firms such as IBM and Cisco and focuses on e-governance and smart traffic management, though it has faced coordination gaps and limited civic engagement.

The Zenata Eco-City, with a moderate PPP level, integrates advanced tools like Building Information Modeling (BIM) and smart grids to promote green housing and renewable energy, yet it encounters regulatory and financial constraints.

The Rabat Ville Intelligente project represents an emerging PPP, incorporating smart lighting and digital public services; however, it suffers from a lack of a clear PPP framework and insufficient funding.

Finally, the Benslimane Smart Zone, still in the planning phase, is projected to integrate cutting-edge technologies such as IoT and AI with a vision of circular economy implementation, although uncertainties remain regarding private sector commitment and institutional planning.

These cases illustrate the diversity and complexity of implementing smart PPPs in Morocco, where technological innovation and sustainable development goals intersect with administrative, financial, and regulatory challenges.

4.2 Role of PPPs in Enabling Digital and Sustainable Innovation

Public-Private Partnerships (PPPs) have become pivotal in driving the integration of digital technologies and sustainability principles into Morocco's urban infrastructure development. As Moroccan cities grapple with rapid urbanization, resource constraints, and environmental challenges, PPPs offer a strategic platform to leverage private sector innovation, investment, and expertise alongside public sector oversight and social objectives.

4.2.1 Catalysts for Technological Integration and Sustainability

PPPs bridge a crucial gap in Morocco between the public sector's limited technical and financial capabilities and the private sector's capacity for innovation and operational efficiency. This is particularly evident in how digital technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), and Building Information Modelling (BIM) are increasingly embedded within urban projects to optimize resource use, enhance service delivery, and minimize environmental impacts. For example:

Zenata Eco-City, a flagship sustainable urban development near Casablanca, exemplifies the synergies fostered through PPPs. Veolia, a key private partner, spearheaded the implementation of sensor-based water and energy management systems, enabling real-time monitoring and adaptive control that significantly reduces waste and enhance efficiency ((SAZ), 2021). This data-driven approach aligns with global best practices in sustainable urban infrastructure management.

Alongside Veolia, Bouygues Immobilier brought expertise in smart building technologies, ensuring new constructions meet rigorous environmental standards through energy-efficient designs and integrated digital controls. Their involvement highlights the capacity of PPPs to localize cutting-edge global innovations, creating frameworks where responsibilities for sustainability outcomes are jointly managed and risks are shared.

4.2.2 Learning from International Experiences

Morocco's PPP initiatives reflect similar trends witnessed internationally, where such partnerships have evolved beyond mere financing mechanisms to become crucial enablers of technological transfer and sustainable urban transformation. The Nice Côte d'Azur smart city project in France serves as an instructive parallel. There, municipal authorities partnered with private firms like Thales and IBM to deploy AI-powered energy management systems and intelligent mobility platforms that reduce carbon footprints and improve the quality of life (Picon, 2015). This collaboration underscores how PPPs can facilitate access to advanced technological solutions and foster innovation ecosystems within public urban governance structures.

Academic studies further reinforce this perspective, viewing PPPs as institutional structures capable of accelerating sustainability transitions by embedding digital innovation within public infrastructure processes (D, Bel, & Geddes, 2020).The Moroccan experience thus aligns with a growing international consensus that PPPs should strategically serve as conduits for technological diffusion, capacity building, and sustainability enhancement.

4.2.3 Challenges in the Moroccan Context: Uneven Implementation and Capacity Gaps

Despite these successes, the institutional and socio-economic landscape in Morocco presents challenges that hinder the uniform adoption and scaling of digital and sustainable innovations via PPPs. The Casablanca Smart City initiative illustrates best practices through collaboration with global technology firms such as Cisco and IBM, which bring world-class digital infrastructure and expertise into urban energy, transportation, and governance systems. These partnerships have enabled the deployment of connectivity networks essential to the functioning of smart city applications.

However, smaller Moroccan municipalities often struggle to attract private partners with the sophisticated digital and financial capacities required to undertake such projects. The lack of robust institutional incentives, clear regulatory frameworks, and governance mechanisms constrains private sector engagement and innovation diffusion in these contexts. This disparity highlights the critical need for tailored policy interventions that:

- Enhance local government capabilities to design, implement, and manage PPP projects, including through capacity-building programs;
- Introduce stronger incentives and risk mitigation tools, attracting private investment in less economically dynamic regions;
- Facilitate knowledge exchange and technology transfer from successful urban centers to smaller municipalities;
- Foster multi-level governance coordination to streamline legal and administrative procedures.
- Expanding the Potential of PPPs for Sustainability and Digitalization.

Future PPPs in Morocco could notably benefit from integrating innovative financing mechanisms such as green bonds and impact investment funds focusing on sustainability outcomes. Moreover, embedding participatory approaches involving local communities and civil society actors into PPP frameworks could enhance accountability, social acceptance, and responsiveness of digital and environmental interventions.

On the technological frontier, emerging digital trends like blockchain for transparent urban governance, AI-driven predictive maintenance for infrastructure, and IoT-enabled circular economy practices present untapped opportunities for PPPs to pilot innovative solutions that further advance Morocco's urban sustainability goals.

Ultimately, optimizing the role of PPPs in promoting digital and sustainable innovation requires coordinated efforts across stakeholders, continuous evaluation of

project impacts, and adaptive governance that embraces technological change while prioritizing equitable and environmentally sound urban development.

4.3 Governance, Institutional Challenges, and Risk Allocation

Public-Private Partnerships (PPPs) in Morocco's smart city development hold great promise but are significantly constrained by governance bottlenecks and institutional fragmentation, particularly at the municipal level. Although Morocco enacted the PPP Law in 2014, which provides a comprehensive legal framework for PPPs nationally, its operational effectiveness at the city and regional levels remains limited (Finance, 2019).

4.3.1 Institutional Fragmentation and Regulatory Gaps

Many Moroccan municipalities lack dedicated PPP units or specialized technical expertise, leading to heavy dependence on central government agencies for project development, contracting, and oversight. This fragmentation dilutes accountability and slows decision-making. For example, in the Rabat Ville Intelligente initiative, private partners have expressed concerns about:

- Ambiguities in regulatory frameworks, especially regarding data governance, digital public service delivery, and cybersecurity standards.
- Lack of harmonized procedures for procurement and contract management.
- Insufficient clarity on digital infrastructure ownership and operational mandates.

4.3.2 Risk Allocation Imbalances

Risk allocation remains a critical challenge. PPP models theoretically promote an equitable division of financial, operational, and technological risks according to each party's capacity and incentives. However, Moroccan public institutions often shoulder disproportionate risks, especially in early or pilot projects such as the Benslimane Smart Zone, where planning and regulatory frameworks are still evolving.

This risk imbalance discourages private sector participation or leads to higher risk premiums, adversely impacting the financial viability and sustainability of projects.

Table 2: PPP Risk Allocation: Ideal vs. Moroccan Practice

Risk Type	Ideal Allocation	Observed Moroccan Practice	Impact
Financial Risk	Shared; private sector to bear demand/revenue risk	The public sector absorbs upfront capital risks	Public budgets are strained; the private sector is reluctant
Operational Risk	Private sector for management and maintenance	Mainly the public sector due to limited private expertise	Inefficient operations; service disruptions
Technological Risk	Private sector bears tech innovation risks	The public sector often retains responsibility	Slower innovation adoption; higher costs
Regulatory & Legal Risk	Shared with clear frameworks	The private sector is exposed to unpredictability	Investor uncertainty; project delays

Source: Adapted from OECD (2018).

In contrast, countries with mature PPP frameworks, such as France, have institutionalized tools like risk matrices, public sector comparators, and performance benchmarking mechanisms (OECD, Public-Private Partnerships: Governance Principles for the Public Sector., 2018). These foster transparency and clarify risk-sharing, incentivising efficient project delivery.

For Morocco, adopting such risk evaluation tools and establishing clear guidelines on data governance and contract enforcement will be critical to enhancing private sector confidence and improving PPP outcomes.

4.4 Comparative Insights: Morocco and International Case Studies

Understanding Morocco's PPP ecosystem benefits from a comparative lens, particularly with countries possessing more mature frameworks.

Table 3: Comparative Analysis of Smart City Public-Private Partnerships in Morocco and France

Aspect	Morocco	France	Key Lessons for Morocco
Digital Governance	Limited maturity; data is often managed by private entities with weak regulation	Advanced data sovereignty laws; municipalities retain ownership (e.g., Lyon Métropole)	Strengthen legal frameworks to secure data ownership and privacy
Participation	Low citizen involvement in PPP planning and governance	High; participatory urban labs for co-design and testing (e.g., Nantes, Dijon)	Embed citizen participation mechanisms in PPPs
Financing	Reliance on public funds and concessional loans	Diverse: green bonds, digital development banks, PPP funds	Develop innovative financing tools for digital-sustainable projects
Risk Allocation	The public bears disproportionate risks	Mature risk-sharing frameworks; the private sector assumes operational risk	Implement risk matrices and public sector comparators
Project Examples	Zenata Eco-City, Benslimane Smart Zone	Nice Côte d'Azur smart city, Lyon Métropole	Foster knowledge exchange and policy adaptation

Sources: (Aubert.J, Renaud, & Perrin, 2020) ; (OECD, Public-Private Partnerships: Governance Principles for the Public Sector., 2018).

In France, smart city PPPs are characterized by strong digital sovereignty, where data infrastructures are publicly owned, ensuring that private innovation does not compromise public interest protections. For instance, Lyon Métropole integrates comprehensive data-sharing agreements with providers, balancing innovation with citizen privacy (Aubert.J, Renaud, & Perrin, 2020).

Morocco's delegation of critical digital infrastructure and data management to private actors, often without fully developed regulatory oversight, risks creating long-term dependencies and potential infringements on privacy and public accountability.

4.5 Citizen Participation and Social Inclusion in Smart PPPs

An equally vital but underemphasized dimension in Morocco's smart city PPPs is citizen participation and social inclusion. While many initiatives implement digital platforms for managing services like traffic and energy, these tend to be top-down projects designed and led primarily by private entities, without meaningful engagement of local communities or civil society.

In Casablanca, for example, e-governance rollouts largely bypassed consultation with residents, resulting in:

- Limited public trust and awareness.
- Potential mismatches between provided services and actual citizen needs.
- Digital exclusion of marginalized groups lacking internet access or digital literacy.
- Digital Inclusion Challenges in Morocco.

Table 4: Key Digital Inclusion Indicators in Morocco by Area

Indicator	National Average (%)	Urban Areas (%)	Rural Areas (%)
Internet Penetration (DataReportal, 2024)	90.7	~91.6	~77.3
Mobile Phone Ownership (HCP, 2024)	84.4 (age 15+)	89.3	75.5
Smartphone Ownership (as % of mobile) ((HCP), 2023)	~65 (approximate)	88	40
Digital Literacy (Kadiri, 2024)	~55 (national average)	80 (urban)	30 (rural)
Access to E-Government Platforms (Moroccan Ministry of Digital Transition, 2025)	~50	75	20

Source: Authors' elaboration.

In contrast, France and other advanced economies increasingly involve citizens through participatory urban labs and open innovation platforms, where residents test digital services and contribute to design improvements prior to full launches (de Witte & Geys, 2021). Cities like Nantes and Dijon have institutionalized this approach, resulting in:

- Increased transparency and public trust.
- Improved service customization to local needs.
- Higher adoption rates and social legitimacy.

For Morocco, incorporating citizen-centered design principles into PPP contracts and project governance could significantly enhance social equity and project success. This includes:

- Mandating public consultations and feedback loops.
- Investing consistently in digital literacy programs, especially for underserved populations.
- Promoting open data initiatives to foster civic engagement and innovation.

Table 5: Key Challenges and Recommendations

Dimension	Challenges in Morocco	International Best Practices	Recommendations
Governance & Regulation	Fragmented PPP governance; legal ambiguities	Unified legal frameworks; data sovereignty laws	Develop clear PPP guidelines; strengthen digital governance
Institutional Capacity	Lack of technical PPP units at municipal level	Dedicated PPP agencies with technical expertise	Build municipal PPP capacities; train officials
Risk Allocation	Public sector bears early-stage risks	Risk matrices; public sector comparators	Adopt risk evaluation tools; clarify responsibilities
Financing Mechanisms	Reliance on direct public funding and concessional loans	Diverse instruments, including green bonds	Diversify financing; mobilize private and impact investors
Citizen Participation	Minimal citizen engagement; digital divide	Participatory urban labs; co-designed solutions	Embed citizen participation; invest in digital inclusion programs

Source: Authors' elaboration.

The success of Public-Private Partnerships (PPPs) in Morocco's smart city projects depends on several important factors related to governance, institutions, financing, risk management, and citizen involvement. The table below summarizes the main challenges Morocco faces, compares them with international best practices, and proposes recommendations.

1. Governance & Regulation

In Morocco, PPP governance is fragmented and suffers from unclear legal frameworks, especially at the municipal level. This creates confusion around roles, responsibilities, and data governance, slowing project development. In contrast, countries with mature PPP systems have clear and unified legal frameworks, including strong data sovereignty rules that protect public interests while encouraging innovation. For example, in France, cities like Lyon have clear agreements on data management. Morocco could improve outcomes by establishing clearer PPP guidelines and strengthening digital governance to ensure transparent and predictable regulations.

2. Institutional Capacity

Many Moroccan municipalities lack technical PPP units and experts, limiting their ability to design and manage projects effectively. This often leads to delays and inefficient partnerships. Internationally, successful PPPs rely on dedicated agencies with skilled staff handling technical, legal, and financial aspects. Building local institutional capacities through the creation of municipal PPP units and the training of officials would enhance project design, negotiation, and implementation.

3. Risk Allocation

Moroccan public entities currently carry too much early-stage risk, discouraging private partners from investing and increasing project costs. Advanced PPP frameworks use tools like risk matrices and public sector comparators to allocate risks based on each party's capabilities. Adopting such tools and clarifying responsibilities would help distribute risks more equitably and improve private sector confidence.

4. Financing Mechanisms

PPP financing in Morocco relies mostly on public funds and concessional loans, which limits innovation and reduces private incentives. Many countries diversify funding sources through green bonds, digital development banks, and impact investment funds focused on sustainability. Expanding financing instruments could attract both private and impact investors, enabling more innovative and sustainable projects.

5. Citizen Participation

Citizen involvement in Moroccan PPP smart city projects is minimal, and the digital divide limits many people's ability to access and benefit from new technologies. International practices such as participatory urban labs and co-design sessions demonstrate the value of involving residents early and continuously. Embedding citizen participation in PPP processes and investing in digital literacy and inclusion programs would promote equitable access and strengthen social acceptance of smart city initiatives.

5. Conclusion

Public-Private Partnerships (PPPs) stand at the forefront of Morocco's efforts to transform its urban spaces into smart, sustainable, and inclusive cities. As this study has shown, PPPs are essential catalysts for integrating cutting-edge technologies such as Artificial Intelligence, the Internet of Things, and sustainable infrastructure, bridging the gap between limited public resources and the private sector's innovation and expertise.

Despite promising projects like Casablanca Smart City and Zenata Eco-City, Morocco faces significant institutional, regulatory, and financial challenges that hinder the full potential of PPP-driven smart city development. Fragmented governance, lack of technical capacities at the municipal level, uneven risk allocation, and limited citizen participation continue to slow progress and create disparities across regions.

By learning from international best practices such as unified legal frameworks, institutionalized risk assessment tools, diversified financing mechanisms, and participatory design approaches. Morocco can enhance its PPP framework to better support technological diffusion and sustainability transitions. Strengthening governance, building institutional capacities, adopting innovative financing instruments, and fostering genuine community engagement are critical steps toward achieving this goal.

Ultimately, the success of PPPs in Morocco will depend on coordinated multi-level efforts that combine policy reform with pragmatic implementation. With robust

institutional support and inclusive strategies, PPPs can not only accelerate Morocco's digital transformation but also promote resilient urban futures that are equitable and ecologically sound.

Therefore, continuing to adapt global experiences to local realities, while maintaining political commitment and fostering collaboration among stakeholders, will be key for Morocco to realize the vision of smart cities that enhance the quality of life and sustainable development for all its citizens.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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